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REPORT OF THE SECRETARY  
OF THE SMITHSONIAN  
INSTITUTION

AND

FINANCIAL REPORT OF  
THE EXECUTIVE COMMITTEE OF  
THE BOARD OF REGENTS

1939

SMITHSONIAN INSTITUTION  
WASHINGTON, D. C.





# REPORT OF THE SECRETARY OF THE SMITHSONIAN INSTITUTION

AND

## FINANCIAL REPORT OF THE EXECUTIVE COMMITTEE OF THE BOARD OF REGENTS

FOR THE

YEAR ENDED JUNE 30

1939



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# THE SMITHSONIAN INSTITUTION

June 30, 1939

*Presiding officer ex officio.*—FRANKLIN D. ROOSEVELT, President of the United States.

*Chancellor.*—CHARLES EVANS HUGHES, Chief Justice of the United States.

*Members of the Institution:*

FRANKLIN D. ROOSEVELT, President of the United States.

JOHN N. GARNER, Vice President of the United States.

CHARLES EVANS HUGHES, Chief Justice of the United States.

CORDELL HULL, Secretary of State.

HENRY MORGENTHAU, Jr., Secretary of the Treasury.

HENRY HINES WOODRING, Secretary of War.

FRANK MURPHY, Attorney General.

JAMES A. FARLEY, Postmaster General.

CLAUDE A. SWANSON, Secretary of the Navy.

HAROLD L. ICKES, Secretary of the Interior.

HENRY A. WALLACE, Secretary of Agriculture.

HARRY LLOYD HOPKINS, Secretary of Commerce.

FRANCES PERKINS, Secretary of Labor.

*Regents of the Institution:*

CHARLES EVANS HUGHES, Chief Justice of the United States, Chancellor.

JOHN N. GARNER, Vice President of the United States.

M. M. LOGAN, Member of the Senate.

CHARLES L. McNARY, Member of the Senate.

ALBEN W. BARKLEY, Member of the Senate.

CHARLES L. GIFFORD, Member of the House of Representatives.

CLARENCE CANNON, Member of the House of Representatives.

WILLIAM P. COLE, Jr., Member of the House of Representatives.

FREDERIC A. DELANO, citizen of Washington, D. C.

JOHN C. MERRIAM, citizen of Washington, D. C.

R. WALTON MOORE, citizen of Virginia.

ROLAND S. MORRIS, citizen of Pennsylvania.

HARVEY N. DAVIS, citizen of New Jersey.

ARTHUR H. COMPTON, citizen of Illinois.

*Executive committee.*—FREDERIC A. DELANO, JOHN C. MERRIAM, R. WALTON MOORE.

*Secretary.*—CHARLES G. ABBOT.

*Assistant Secretary.*—ALEXANDER WETMORE.

*Administrative assistant to the Secretary.*—HARRY W. DORSEY.

*Treasurer.*—NICHOLAS W. DORSEY.

*Editor.*—WEBSTER P. TRUE.

*Librarian.*—WILLIAM L. CORBIN.

*Personnel officer.*—HELEN A. OLMSTED.

*Property clerk.*—JAMES H. HILL.

## UNITED STATES NATIONAL MUSEUM

*Keeper ex officio.*—CHARLES G. ABBOT.

*Assistant Secretary (in charge).*—ALEXANDER WETMORE.

*Associate director.*—JOHN E. GRAF.

## SCIENTIFIC STAFF

## DEPARTMENT OF ANTHROPOLOGY:

Frank M. Setzler, head curator; W. H. Egberts, chief preparator.

*Division of Ethnology:* H. W. Krieger, curator; W. W. Hill, assistant curator; Arthur P. Rice, collaborator.

Section of Ceramics: Samuel W. Woodhouse, collaborator.

*Division of Archeology:* Neil M. Judd, curator; Waldo R. Wedel, assistant curator; R. G. Paine, senior scientific aid; J. Townsend Russell, honorary assistant curator of Old World archeology.

*Division of Physical Anthropology:* Aleš Hrdlička, curator; Thomas D. Stewart, associate curator.

Collaborators in anthropology: George Grant MacCurdy; D. I. Bushnell, Jr.

Associate in historic archeology: Cyrus Adler.

## DEPARTMENT OF BIOLOGY:

Leonhard Stejneger, head curator; W. L. Brown, chief taxidermist.

*Division of Mammals:* Gerrit S. Miller, Jr., curator; Remington Kellogg, assistant curator; H. Harold Shamel, senior scientific aid; A. Brazier Howell, collaborator.

*Division of Birds:* Herbert Friedmann, curator; J. H. Riley, associate curator; Alexander Wetmore, custodian of alcoholic and skeleton collections; Casey A. Wood, collaborator; Arthur C. Bent, collaborator.

*Division of Reptiles and Batrachians:* Leonhard Stejneger, curator; Doris M. Cochran, assistant curator.

*Division of Fishes:* Leonard P. Schultz, curator; E. D. Reid, senior scientific aid.

*Division of Insects:* L. O. Howard, honorary curator; Edward A. Chapin, curator; William Schaus, honorary assistant curator.

Section of Hymenoptera: S. A. Rohwer, custodian; W. M. Mann, assistant custodian; Robert A. Cushman, assistant custodian.

Section of Myriapoda: O. F. Cook, custodian.

Section of Diptera: Charles T. Greene, assistant custodian.

Section of Coleoptera: L. L. Buchanan, specialist for Casey collection.

Section of Lepidoptera: J. T. Barnes, collaborator.

Section of Hemiptera: W. L. McAtee, acting custodian.

Section of Forest Tree Beetles: A. D. Hopkins, custodian.

*Division of Marine Invertebrates:* Waldo L. Schmitt, curator; C. R. Shoemaker, assistant curator; James O. Maloney, aid; Mrs. Harriet Richardson Searle, collaborator; Max M. Ellis, collaborator; Maynard M. Metcalf, collaborator; J. Percy Moore, collaborator; Joseph A. Cushman, collaborator in Foraminifera; Charles Branch Wilson, collaborator in Copepoda.

*Division of Mollusks:* Paul Bartsch, curator; Harald A. Rehder, assistant curator; Joseph P. E. Morrison, senior scientific aid.

Section of Helminthological Collections: Benjamin Schwartz, collaborator.



*Division of Echinoderms:* Austin H. Clark, curator.

*Division of Plants (National Herbarium):* W. R. Maxon, curator; Ellsworth P. Killip, associate curator; Emery C. Leonard, assistant curator; Conrad V. Morton, assistant curator; Egbert H. Walker, aid; John A. Stevenson, custodian of C. G. Lloyd mycological collection.

Section of Grasses: Agnes Chase, custodian.

Section of Cryptogamic Collections: O. F. Cook, assistant curator.

Section of Higher Algae: W. T. Swingle, custodian.

Section of Lower Fungi: D. G. Fairchild, custodian.

Section of Diatoms: Paul S. Conger, custodian.

Associates in Zoology: C. Hart Merriam, Mary J. Rathbun, C. W. Stiles, Theodore S. Palmer, William B. Marshall.

Associate Curator in Zoology: Hugh M. Smith.

Associate in Marine Sediments: T. Wayland Vaughan.

Collaborator in Zoology: Robert Sterling Clark.

Collaborators in Biology: A. K. Fisher, David C. Graham.

#### DEPARTMENT OF GEOLOGY:

R. S. Bassler, head curator; Jessie G. Beach, aid.

*Division of Physical and Chemical Geology* (systematic and applied): W. F. Foshag, curator; Edward P. Henderson, assistant curator; Bertel O. Reberholt, senior scientific aid.

*Division of Mineralogy and Petrology:* W. F. Foshag, curator; Frank L. Hess, custodian of rare metals and rare earths.

*Division of Stratigraphic Paleontology:* Charles E. Resser, curator; Gustav A. Cooper, assistant curator; Marion F. Willoughby, senior scientific aid; Margaret W. Moodey, aid for Springer collection.

Section of Invertebrate Paleontology: T. W. Stanton, custodian of Mesozoic collection; Paul Bartsch, curator of Cenozoic collection.

*Division of Vertebrate Paleontology:* Charles W. Gilmore, curator; C. Lewis Gazin, assistant curator; Norman H. Boss, chief preparator.

Associate in Mineralogy: W. T. Schaller.

Associate in Paleontology: E. O. Ulrich.

Associate in Petrology: Whitman Cross.

#### DEPARTMENT OF ENGINEERING AND INDUSTRIES:

Carl W. Mitman, head curator.

*Division of Engineering:* Frank A. Taylor, curator.

Section of Transportation and Civil Engineering: Frank A. Taylor, in charge.

Section of Aeronautics: Paul E. Garber, assistant curator.

Section of Mechanical Engineering: Frank A. Taylor, in charge.

Section of Electrical Engineering and Communications: Frank A. Taylor, in charge.

Section of Mining and Metallurgical Engineering: Carl W. Mitman, in charge.

Section of Physical Sciences and Measurement: Frank A. Taylor, in charge.

Section of Tools: Frank A. Taylor, in charge.

*Division of Crafts and Industries:* Frederick L. Lewton, curator; Elizabeth W. Rosson, senior scientific aid.

Section of Textiles: Frederick L. Lewton, in charge.

Section of Woods and Wood Technology: William N. Watkins, assistant curator.

Section of Chemical Industries: Wallace E. Duncan, assistant curator.

Section of Agricultural Industries: Frederick L. Lewton, in charge.

*Division of Medicine and Public Health:* Charles Whitebread, associate curator.

*Division of Graphic Arts:* R. P. Tolman, curator.

Section of Photography: A. J. Olmsted, assistant curator.

DIVISION OF HISTORY: T. T. Belote, curator; Charles Carey, assistant curator; Mrs. C. L. Manning, philatelist.

#### ADMINISTRATIVE STAFF

*Chief of correspondence and documents.*—H. S. BRYANT.

*Assistant chief of correspondence and documents.*—L. E. COMMERFORD.

*Superintendent of buildings and labor.*—R. H. TREMBLY.

*Assistant superintendent of buildings and labor.*—CHARLES C. SINCLAIR.

*Editor.*—PAUL H. OEHSE.

*Engineer.*—C. R. DENMARK.

*Accountant and auditor.*—N. W. DORSEY.

*Photographer.*—A. J. OLMSTED.

*Property clerk.*—LAWRENCE L. OLIVER.

*Assistant librarian.*—LELIA F. CLARK.

#### NATIONAL GALLERY OF ART

##### *Trustees:*

THE CHIEF JUSTICE OF THE UNITED STATES.

THE SECRETARY OF STATE.

THE SECRETARY OF THE TREASURY.

THE SECRETARY OF THE SMITHSONIAN INSTITUTION.

DAVID K. E. BRUCE.

DUNCAN PHILLIPS.

DONALD D. SHEPARD.

FERDINAND LAMMOT BELIN.

JOSEPH E. WIDENER.

*President.*—DAVID K. E. BRUCE.

*Vice President.*—FERDINAND LAMMOT BELIN.

*Secretary and treasurer.*—DONALD D. SHEPARD.

*Director.*—DAVID E. FINLEY.

*Administrator.*—H. A. MCBRIDE.

*Chief Curator.*—JOHN WALKER.

#### NATIONAL COLLECTION OF FINE ARTS

*Acting director.*—RUEL P. TOLMAN.

#### FREER GALLERY OF ART

*Director.*—JOHN ELLERTON LODGE.

*Assistant director.*—GRACE DUNHAM GUEST.

*Associate in archeology.*—CARL WHITING BISHOP.

*Associate in research.*—ARCHIBALD G. WENLEY.

*Superintendent.*—JOHN BUNDY.



## BUREAU OF AMERICAN ETHNOLOGY

*Chief*.—MATTHEW W. STIRLING.

*Senior ethnologists*.—H. B. COLLINS, JR., JOHN P. HARRINGTON, JOHN R. SWANTON.

*Senior archeologist*.—FRANK H. H. ROBERTS, JR.

*Senior anthropologist*.—JULIAN H. STEWARD.

*Associate anthropologist*.—W. N. FENTON.

*Editor*.—STANLEY SEARLES.

*Librarian*.—MIRIAM B. KETCHUM.

*Illustrator*.—EDWIN G. CASSEDY.

## INTERNATIONAL EXCHANGES

*Secretary (in charge)*.—CHARLES G. ABBOT.

*Chief Clerk*.—COATES W. SHOEMAKER.

## NATIONAL ZOOLOGICAL PARK

*Director*.—WILLIAM M. MANN.

*Assistant director*.—ERNEST P. WALKER.

## ASTROPHYSICAL OBSERVATORY

*Director*.—CHARLES G. ABBOT.

*Assistant director*.—LOYAL B. ALDRICH.

*Senior astrophysicist*.—WILLIAM H. HOOVER.

## DIVISION OF RADIATION AND ORGANISMS

*Director*.—CHARLES G. ABBOT.

*Assistant director*.—EARL S. JOHNSTON.

*Senior physicist*.—EDWARD D. MCALISTER.

*Senior mechanical engineer*.—LELAND B. CLARK.

*Associate plant physiologist*.—FLORENCE E. MEIER.

*Junior Biochemist*.—ROBERT L. WEINTRAUB.





# REPORT OF THE SECRETARY OF THE SMITHSONIAN INSTITUTION

C. G. ABBOT

FOR THE YEAR ENDED JUNE 30, 1939.

*To the Board of Regents of the Smithsonian Institution.*

GENTLEMEN: I have the honor to submit herewith my report showing the activities and condition of the Smithsonian Institution and the Government bureaus under its administrative charge during the fiscal year ended June 30, 1939. The first 18 pages contain a summary account of the affairs of the Institution, and appendixes 1 to 11 give more detailed reports of the operations of the National Museum, the National Gallery of Art, the National Collection of Fine Arts, the Freer Gallery of Art, the Bureau of American Ethnology, the International Exchanges, the National Zoological Park, the Astrophysical Observatory, the Division of Radiation and Organisms, the Smithsonian library, and of the publications issued under the direction of the Institution. On page 133 is the financial report of the executive committee of the Board of Regents.

## OUTSTANDING EVENTS

Another step toward the realization of the proposed Smithsonian Gallery of Art was taken during the year when the Commission set up by Congress held a competition for a design for the Gallery. The prize-winning design was submitted by Eliel Saarinen, of Birmingham, Mich. The superstructure of the National Gallery of Art, which is now being built on the Mall to house the Mellon art collection and which is a bureau of the Smithsonian Institution, was nearly completed. It is hoped that the art collections may be installed by August 1940. The Institution's latest method of carrying on the diffusion of knowledge—a weekly radio program in cooperation with the United States Office of Education—completed 3 full years on the air in June 1939. It is estimated that some 3,000,000 people hear this educational program each week. A retirement system for employees paid from private Smithsonian funds was approved by the Board of Regents and is to go into effect on July 1, 1939.

The staff of the Astrophysical Observatory completed the enormous task of recomputing the daily solar-constant values from all its observing stations since 1923. It is expected that the final definitive values will be published during the coming year. The Division of Radiation and Organisms celebrated the tenth year of its existence. Many fundamental investigations have been carried out during that time, and in the past year emphasis has been placed on exact studies of phenomena connected with photosynthesis.

M. W. Stirling, Chief of the Bureau of American Ethnology, conducted a very successful archeological expedition to Mexico in cooperation with the National Geographic Society. The most interesting find was a stone monument containing an initial-series date. Dr. Aleš Hrdlička completed the final season's work in his program of anthropological investigations in Alaska begun in 1926. Dr. Waldo L. Schmitt accompanied the Presidential cruise of 1938 to the Galápagos Islands, bringing back very valuable collections in many different fields.

One new member was appointed to the Board of Regents, namely, Representative William P. Cole, Jr., of Maryland, to fill the vacancy created by the resignation from the House of Representatives of Hon. T. Alan Goldsborough.

#### SUMMARY OF THE YEAR'S ACTIVITIES OF THE BRANCHES OF THE INSTITUTION

*National Museum.*—The total appropriation actually available during the year was \$771,880, which was \$3,840 less than the amount available for the previous year. Accessions to the Museum collections, received for the most part as gifts or as the result of Smithsonian expeditions, numbered 368,082 individual specimens. This brings the estimated total number of specimens in the Museum to 16,688,759. Some of the outstanding additions were: In anthropology, a large number of stone implements from Indian sites in Maryland, Virginia, and Alaska, and from Mousterian, Tardenoisian, and Acheulean sites in South Africa, and a set of casts representing the remains of the fossil ape-man of China, *Sinanthropus*; in biology, important marine mammal material representing whales, narwhals, walruses, seals, and porpoises, extensive herpetological collections made in Mexico by Dr. Hobart M. Smith, and 11,000 plant specimens collected in little-known parts of Colombia by E. P. Killip of the Museum staff; in geology, a 153-pound topaz crystal from Brazil, 42 meteorite specimens, 25 of them representing falls new to the Museum, 10,000 Paleozoic fossils from the Ohio and Mississippi Valleys given by John M. Nickles, and numerous fossil vertebrates resulting from a field expedition to Utah; in engineering and industries, a collection

of relics of the aeronautical work of Samuel P. Langley, a former Secretary of the Institution, an original Union aircraft engine of the World War period, and many objects pertaining to transportation, communication, metrology, and other branches of this department; and in history nearly 3,600 objects of historic and antiquarian interest. The usual large number of expeditions were in the field during the year in the interests of anthropology, biology, and geology. These were financed largely by the private funds of the Smithsonian Institution or through the cooperation of other individuals or institutions. Visitors to the Museum buildings totaled 2,233,345 for the year. Fourteen special exhibitions were held under the auspices of various scientific, governmental, and educational agencies. The Museum published an annual report, 4 Bulletins and 1 volume of another, 2 Contributions from the National Herbarium, and 27 Proceedings papers.

*National Gallery of Art.*—A number of changes in the personnel of the Gallery were made during the year. Paul Mellon, President, resigned in May 1939, and David K. E. Bruce, Vice President, was elected President. The vacancy thus created in the vice presidency was filled by the election of Ferdinand Lamot Belin. Harry A. McBride was appointed Administrator of the Gallery, John Walker was appointed Chief Curator, and Stephen Pichetto was appointed consultant restorer. Joseph E. Widener and Samuel H. Kress were chosen to fill the vacancies created on the Board of Trustees by the resignation of Paul Mellon and the forthcoming expiration on July 1, 1939, of the term of Donald D. Shepard. The outstanding event of the year was the gift to the Gallery by Samuel H. Kress and the Samuel H. Kress Foundation of a collection of Italian paintings and sculpture, stated by experts to be one of the finest private collections of Italian art in the world. The collection was accepted by the Board of Trustees and will be installed in special rooms before the opening of the Gallery. With the Mellon collection and the Kress collection, the Gallery will at once become a center for art study in this country as well as one of the great galleries of the world. Congress appropriated \$159,000 for the administrative and operating expenses of the Gallery during the fiscal year beginning July 1, 1939. Temporary offices were established, and a nucleus of the permanent staff was assembled for actual appointment on July 1, 1939. The superstructure of the Gallery building was practically completed at the close of the year, and it is hoped that by August 1, 1940, construction will be far enough advanced so that the art collection may be installed. Over \$5,000,000 had been actually expended for construction by the close of the year; the total cost, it is estimated, will be more than \$15,000,000.



*National Collection of Fine Arts.*—The exhibition gallery of the National Collection was closed during the last 4 months of the year for renovation. Weak plaster was replaced, the woodwork painted, and the walls covered with rubber-backed monk's cloth. The eighteenth annual meeting of the Smithsonian Art Commission was held on December 6, 1938, and four art works submitted during the year were accepted for the National Collection. Two miniatures were acquired through the Catherine Walden Myer fund. Six special exhibitions were held as follows: The Eberstadt collection of 260 naval historical prints; architectural exhibition of photographs of representative buildings of the post-war period; 200 prints by graphic artists, Federal Art Project, Works Progress Administration; 76 water-color paintings of the flora of the Isthmus of Panama by Marie Louise Evans; 173 water-color sketches of wild flowers of various national parks by Mary Vaux Walcott; 56 oil paintings, 38 drawings, 4 water colors, and 3 pastels by Joel J. Levitt.

*Freer Gallery of Art.*—Additions to the collections included Chinese bronze, jade, and paintings; an Arabic manuscript; and East Indian painting. Curatorial work was devoted to the study of these new acquisitions and to other Chinese, Japanese, Arabic, Persian, East Indian, and Armenian manuscripts or art objects either already in the collection or submitted for purchase. In addition, information on 1,386 similar objects and 586 photographs of objects was furnished to the owners, who wished to know their identity, provenance, quality, date, meaning of inscriptions, etc. Changes in exhibition involved a total of 71 objects. The total number of visitors for the year was 102,936. An illustrated lecture on "Essentials in Chinese Painting" was given by Dr. Osvald Sirén, Curator of Oriental Arts, National Museum, Stockholm, on March 15, 1939. Eighteen groups were given instruction in the various rooms, and six groups were given docent service in the exhibition galleries.

*Bureau of American Ethnology.*—Mr. Stirling, Chief of the Bureau, directed an archeological expedition to southern Veracruz, Mexico, in cooperation with the National Geographic Society, which financed the expedition. Nine major stone monuments were excavated, and a large collection of ceramics and figurines was obtained. The most interesting discovery was a stone monument inscribed with an initial-series date. Dr. Swanton continued his field and office work connected with his study of De Soto's route, and completed his report as chairman of the United States De Soto Expedition Commission. The 400-page report was published in May 1939 as a House document. Dr. Harrington continued his study of the northern provenience of the Navaho Indians, and in May 1939 he went to California to check with native informants

certain recently discovered documents relating to the Sacramento Valley Indians. Dr. Roberts continued his investigations of Folsom man at the Lindenmeier site in northern Colorado, bringing to light more material evidence of this early American culture. Dr. Steward continued his archeological and ethnological reconnaissance in western South America, in preparation for the editing of the proposed Handbook of South American Indians, and completed preparations for the actual beginning of this project. Mr. Collins, newly appointed ethnologist in the Bureau by transfer from the National Museum, worked over the large collection of prehistoric Eskimo artifacts, several thousand in number, which he excavated on a previous expedition to Cape Prince of Wales and other points in the vicinity of Bering Strait. Dr. Fenton, appointed to the staff of the Bureau in February 1939, wrote up the results of his previous investigations among the Iroquois. Miss Densmore, a collaborator of the Bureau, submitted two manuscripts entitled "Choctaw War and Dance Songs" and "Choctaw and Seminole Songs." Mr. Carter, another collaborator, worked with the ethnographic and Indian sign-language material contained in the manuscripts of the late Maj. Gen. Hugh L. Scott. The Bureau published its annual report and six bulletins.

*International Exchanges.*—The International Exchange Service under the Smithsonian Institution acts as the official agency of the United States for the interchange with other countries of governmental and scientific documents. The number of packages of such material passing through the Exchange Service during the year was 714,877, and the weight of these packages was 719,694 pounds. Shipments to Spain were still suspended at the close of the year, but efforts were being made through diplomatic channels to resume exchange relations. There are now being sent through the Exchange Service to foreign countries 61 full sets of United States official documents and 47 partial sets. One hundred and three copies of the Congressional Record and the Federal Register are now sent to foreign depositories. A very appreciative letter was received from Dr. T. L. Yuan, officially connected with the Library Association of China, thanking the Exchange Service for its part in assembling and forwarding a total of more than 36,000 packages of publications presented by individuals and establishments throughout this country.

*National Zoological Park.*—Extensive improvements to the grounds, including large grading projects, building of a stone feed house, constructing buffalo paddocks, laying of new concrete walks, repairing of roads, and other similar work, were completed during the year through W. P. A. assistance. The Public Works Adminis-

tration allotted \$90,000 for a much-needed restaurant building. The Director made a trip to the Argentine, bringing back 70 crates of live animals numbering 316 individuals of 58 different species. Visitors for the year totaled 2,201,080, including 37,220 students from 699 different schools in 22 States and the District of Columbia. As usual, many specimens were received as gifts, among the most interesting of which were 10 Louisiana herons and 11 snowy egrets from A. E. McIlhenny, Avery Island, La., and a fine collection of Central American reptiles from Costello Craig, Washington, D. C. Forty-eight mammals were born and 15 birds were hatched in the Zoo during the year. The total number of animals in the collection at the close of the year was 2,450. The Zoo now has four excellent exhibition buildings, but there remain three that are old and unsatisfactory, namely, those housing lions, monkeys, and antelopes. The greatest need of the Zoo is the replacement of these three buildings with modern structures.

*Astrophysical Observatory.*—The recomputation of all solar-constant values since 1923 was practically completed, the only remaining work being the final corrections and general discussion, which are expected to be concluded by October 1939. The entire revision will then be published. The Director spent considerable time in preparing a reply to criticisms of the solar-constant work published by Dr. M. M. Paranpje in the Quarterly Journal of the Royal Meteorological Society. Observations of the solar constant were begun at the new station on Burro Mountain, near Tyrone, N. Mex. Exceptional snowfall occurred there during the winter, but it is expected that other years will be very favorable for observations. Solar-constant observing has been continued at the other two stations at Table Mountain, Calif., and Montezuma, Chile, on every favorable day. W. H. Hoover set up apparatus in the 100-inch telescope building on Mount Wilson for measuring the distribution of energy in the spectra of the brighter stars and observed with considerable success on August 31 and September 21, 1938. As a result, it is believed that with certain improvements in the apparatus it will be possible to obtain continuous, automatically recorded stellar spectrum energy curves, probably at least 10 centimeters high at maximum, for the brightest stars when the 200-inch telescope becomes available.

*Division of Radiation and Organisms.*—The year 1939 marked the tenth anniversary of the establishment of the Division. During that period notable progress has been made both in developing physical equipment and in building up a permanent scientific staff. Numerous fundamental investigations have been carried out, with the result that members of the staff are frequently consulted on research problems in the field of radiation as related to living organisms. During the year the attention of the staff was concentrated on photosynthesis,



factors influencing plant growth, and the stimulative action of ultraviolet radiation. Experimental evidence was obtained which indicates the formation during photosynthesis of a material which combines with or absorbs carbon dioxide. This compound, or "intermediate," appears to be chlorophyllous in nature. Apparatus and method were developed for the determination of small amounts of chlorophyll, the sensitivity with a 5-centimeter absorption cell being  $\frac{1}{10000}$  milligram of chlorophyll. Further progress was made in the investigation of suitable artificial illumination for the growth of plants under controlled conditions. Studies were continued on the relation of light to internode development. The effect of radiation on the growth of excised roots and leaves was investigated. Continuation of the studies on the stimulative action of ultraviolet light showed that sublethal exposure of the green alga *Stichococcus bacillaris* to certain short wave lengths of the ultraviolet caused increased cell multiplication. This stimulative action is not transitory but has persisted in the cultures over a period of 2 years. Three papers by members of the staff on these researches were published, and others were in press at the close of the year.

#### THE ESTABLISHMENT

The Smithsonian Institution was created by act of Congress in 1846, according to the terms of the will of James Smithson, of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." In receiving the property and accepting the trust, Congress determined that the Federal Government was without authority to administer the trust directly, and, therefore, constituted an "establishment" whose statutory members are "the President, the Vice President, the Chief Justice, and the heads of the executive departments."

#### THE BOARD OF REGENTS

The only change in the Board of Regents during the year was the appointment by the Speaker of the House of Representatives, on April 12, 1939, of Representative William P. Cole, Jr., of Maryland, to fill the unexpired term of Representative T. Allan Goldsborough, who resigned from the House of Representatives.

The roll of Regents at the close of the year was as follows: Charles Evans Hughes, Chief Justice of the United States, Chancellor; John N. Garner, Vice President of the United States; members from the Senate—M. M. Logan, Charles L. McNary, Alben W. Barkley; members from the House of Representatives—Charles L. Gifford, Clar-

ence Cannon, William P. Cole, Jr.; citizen members—Frederic A. Delano, Washington, D. C.; John C. Merriam, Washington, D. C.; R. Walton Moore, Virginia; Roland S. Morris, Pennsylvania; Harvey N. Davis, New Jersey; and Arthur H. Compton, Illinois.

*Proceedings.*—The annual meeting of the Board of Regents was held on January 12, 1939. The Regents present were Chief Justice Charles Evans Hughes, Chancellor; John N. Garner, Vice President of the United States; Senator M. M. Logan; Representatives T. Alan Goldsborough and Charles L. Gifford; Citizen Regents Frederic A. Delano, John C. Merriam, R. Walton Moore, Harvey N. Davis and Arthur H. Compton; and the Secretary, Dr. Charles G. Abbot.

The Secretary presented his annual report, covering activities during the year of the parent institution and of the several Government branches, and Mr. Delano presented the report of the executive committee, covering financial statistics of the Institution. The Board accepted these reports.

The Secretary also presented the annual report of the Smithsonian Art Commission, the membership of which is as follows: Charles L. Borie, Jr., Chairman; Frank Jewett Mather, Jr., Vice Chairman; Charles G. Abbot (*ex officio*), Secretary; and Herbert Adams, Louis Ayres, Gifford Beal, Gilmore D. Clarke, George H. Edgell, David E. Finley, James E. Fraser, Frederick P. Keppel, John E. Lodge, Paul Manship, George B. McClellan, Edward W. Redfield, Mahonri M. Young.

In his usual special report the Secretary mentioned briefly the more important activities carried on by the Institution and its bureaus during the year.

#### FINANCES

A statement will be found in the report of the executive committee, page 133.

#### MATTERS OF GENERAL INTEREST

##### THE SMITHSONIAN GALLERY OF ART

On May 17, 1938, the President approved a congressional resolution which authorized him to set aside ground on the Mall for a Smithsonian Gallery of Art. The resolution also created the Smithsonian Gallery of Art Commission, which was authorized to obtain a design for a "suitable building for properly housing and displaying the national collections of fine arts and \* \* \* to exhibit the works of artists worthy of recognition." An appropriation of \$40,000 was authorized for this purpose, and that amount was provided in the Second Deficiency Act approved June 25, 1938. The members of the Commission are:

C. G. Abbot, Secretary of the Smithsonian Institution;  
Edward Bruce, Chief of the Section of Fine Arts in the Treasury Department;  
Frederic A. Delano, Chairman of the National Capital Park and Planning Commission;  
Gilmore D. Clarke, Chairman of the Commission of Fine Arts;  
Hon. Alben W. Barkley, chairman of the Joint Committee on the Library, United States Senate;  
Hon. Kent E. Keller, chairman of the Committee on the Library, House of Representatives;  
Charles L. Borie, Jr., Chairman of the Smithsonian Art Commission.

The Commission appointed as its professional adviser, Joseph Hudnut, professor of architecture in Harvard University, and as its technical adviser, Thomas Mabry, executive director of the Museum of Modern Art in New York City. The duty of these two men was to prepare a program of the proposed competition to select an architect for the Smithsonian Gallery of Art and to conduct the competition itself.

A jury of award was set up by the Commission, consisting of Frederic A. Delano, Chairman, and four prominent architects—John A. Holabird, of Chicago; Walter Gropius, of Cambridge; George Howe, of Philadelphia; and Henry R. Shepley, of Boston. The program of competition was issued January 21, 1939, all drawings for the preliminary competition to be submitted by April 29. On May 13 the Commission met at the Smithsonian Institution to receive notice of the awards in the preliminary competition. The 10 best designs, making those submitting them eligible for the final competition, were those of the following:

Paul P. Cret, Philadelphia;  
Percival Goodman, New York City;  
Phillip L. Goodwin, New York City;  
Harry F. Manning, Chicago;  
James A. Mitchell, Pittsburgh;  
Eliot F. Noyes, Cambridge;  
G. Holmes Perkins, Cambridge;  
Peter and Stubbins, Boston;  
Eliel and Eero Saarinen, Birmingham, Mich.;  
Edward D. Stone, New York City.

Honorable mention was awarded to 16 other competitors.

The 10 prize winners entered the final competition, and on June 29, 1939, the Commission met again at the offices of Mr. Bruce in the Procurement Division of the Treasury Department to receive the final report of the jury of award. The first prize of \$7,500 was awarded to Eliel Saarinen, the second prize of \$3,500 to Percival Goodman, and each of the eight remaining competitors received the third prize of \$1,000.



The Commission then requested the Procurement Division of the Treasury to submit a proposal for the construction of a model of the Saarinen design on a scale of  $\frac{1}{8}$ -inch=1 foot and appropriated \$1,500 for this purpose. As the resolution creating the Commission required the approval of the successful design by the Board of Regents of the Smithsonian Institution, the Commission submitted a report of their action to that Board.

It was contemplated in the congressional resolution that the building for the Smithsonian Gallery of Art would be constructed with private funds, and the Regents of the Institution were authorized to solicit and receive subscriptions of funds for that purpose. At the close of the year no funds had been raised.

#### SMITHSONIAN RADIO PROGRAM

"The World is Yours," the Smithsonian radio program put on the air in cooperation with the United States Office of Education, the National Broadcasting Co., and the Works Progress Administration, completed its third year of consecutive weekly half-hour programs in June 1939. The Institution selects the subjects of the broadcasts, furnishes the necessary information to the script writer, and corrects the scripts and supplementary articles. The Office of Education is responsible for the writing of the scripts and supplementary articles and, with the National Broadcasting Co., for the production of the broadcasts. Time on the air is given by the National Broadcasting Co., and financial support by the Works Progress Administration.

The series has continued to increase in popularity, as indicated by the larger number of letters received in the last 6 months of the year. At the close of the year more than 350,000 letters had been received as a result of the broadcasts, but for the last 6-month period the number was 106,000, a decided increase over any previous similar period. Several marks of recognition came to the program during the year: It was named by the National Women's Radio Committee as the most popular of all adult education programs; in a poll of 750,000 votes taken by the magazine *Radio Guide*, "The World is Yours" stood fourth among the 12 leading educational programs, the only three ahead of it being "American School of the Air," "Great Plays," and "Music Appreciation Hour"; and one of the scripts received honorable mention at the annual meeting of the Institute for Education by Radio held at Columbus, Ohio, in May 1939. A number of published articles by radio education experts have praised the program; for example, an authority of the Ohio State University writes:

"The World is Yours" \* \* \* has demonstrated beyond question that interest in the arts and sciences can be increased on a nationwide scale by means of radio. "The World is Yours" is probably the finest example that American radio has to offer of the use of ingenious techniques, sound effects, and musical background to produce a deep and lasting educational effect on the listener.

The number of stations carrying the program every Sunday has steadily increased, until at the close of the year the number stood at 78, almost the maximum possible on the N. B. C. red network. It is also carried on a short-wave station at Schenectady for foreign listeners, and is rebroadcast at a different hour by at least one independent station. The scripts are available to schools, clubs, and others interested through the Office of Education script exchange.

The subjects of the broadcasts, selected by the Institution, are widely diversified, as will be seen by examining the list given below, but they are also carefully arranged—though this may not be so apparent on a casual inspection of the list—so that the broad subjects covered by Smithsonian activities come around in fairly regular rotation. These broad classifications include physical science, astronomy, biology, geology, anthropology, engineering and industries, history, art, and exploration. The subjects covered during the past year were as follows:

	1938
Independence Hall.....	July 3
History of the Earth.....	July 10
Invention of the Steamboat.....	July 17
Great Astronomers.....	July 24
The Potter's Art.....	July 31
Inland Waterways.....	Aug. 7
Crustaceans.....	Aug. 14
Communications.....	Aug. 21
Seven Ages of Geology.....	Aug. 28
Battle against Disease.....	Sept. 4
Lead.....	Sept. 11
Army and Navy Uniforms.....	Sept. 18
Balboa and the Discovery of the Pacific.....	Sept. 25
Fur-bearing Animals.....	Oct. 2
Eskimo.....	Oct. 9
Insects vs. Forests.....	Oct. 16
Heros and Heroines.....	Oct. 23
Great Engineering Feats.....	Oct. 30
LaSalle on the Mississippi.....	Nov. 6
Progress in Science.....	Nov. 13
Aircraft in the World War.....	Nov. 20
Romance of Rivers.....	Nov. 27
Microscopic Animals.....	Dec. 4
Arctic Explorers.....	Dec. 11
Petroleum.....	Dec. 18
History of Dolls and Toys.....	Dec. 25

	<i>1939</i>
Early Wings for Commerce.....	Jan. 1
Modern Wings for Commerce.....	Jan. 8
Pushing Back History.....	Jan. 15
The Geologist Detective.....	Jan. 22
Our Island Universe.....	Jan. 29
Pearls and Oysters.....	Feb. 5
Great American Biologists.....	Feb. 12
Story of Aluminum.....	Feb. 19
Cave and Cliff Dwellers.....	Feb. 26
Modern Medicine.....	Mar. 5
Animals of Fable.....	Mar. 12
The Air above Us.....	Mar. 19
Eli Whitney—Cotton's Man of Destiny.....	Mar. 26
Gems and Gem Lore.....	Apr. 2
First Ladies' Fashions.....	Apr. 9
Trail Blazing with Science.....	Apr. 16
Head Hunters.....	Apr. 23
New Frontiers of Physics.....	Apr. 30
From New York to Washington by Coach in 1800.....	May 7
The Lewis and Clark Expedition.....	May 14
Model Airplanes.....	May 21
Salt from the Earth.....	May 28
Old-Fashioned Gardens.....	June 4
Growth of the American Flag.....	June 11
Fishing around the World.....	June 18
The Miracle of Paper.....	June 25

Supplementary articles on each subject, known as listener-aids, were sent after each broadcast to those requesting them. In this way the educational value of the programs is extended and put on a more lasting basis, as the listener-aids can be preserved for reference use.

The continuation of "The World is Yours" is assured for the coming year. The Institution has been grateful to the Office of Education, the National Broadcasting Co., and the W. P. A. for making available this new means of diffusing knowledge. In point of numbers reached, in interest aroused, and in lasting educational value, this series of broadcasts has perhaps been the most effective method the Institution has ever used for the "diffusion of knowledge among men."

#### WALTER RATHBONE BACON TRAVELING SCHOLARSHIP

The Walter Rathbone Bacon traveling scholarship of the Smithsonian Institution was awarded at the beginning of the year to Dr. Hobert M. Smith for a period of 2 years. The purpose of Dr. Smith's investigation is the accumulation of specimens of reptiles and amphibians from Mexico, on the basis of which, combined with material already available from Mexico, a herpetology of Mexico



may be compiled and the biotic provinces of the country more accurately defined.

Reports received from Dr. Smith in the field state that collecting began on October 5. Up to the close of the year he had worked in Chihuahua, Coahuila, Tamaulipas, central Veracruz, Morelos and Guerrero, as well as in the lakes of the valleys of Mexico and Toluca, on the southern edge of the plateau in Michoacán, and in the vicinity of Piedras Negras, Guatemala. Approximately 8,100 specimens had been taken, representing 360 species, of which at least 10 were new.

#### SMITHSONIAN INSTITUTION EMPLOYEES RETIREMENT SYSTEM

The important matter of a retirement system for employees who receive all or a portion of their salaries from the private funds of the Institution was taken up during the year. Many of the Institution's employees and all those of the Government bureaus under its administration receive their compensation from the Federal Government, placing them automatically under the Government retirement system. But for the remaining employees, who receive all their compensation from private Smithsonian funds, there has been no definite plan to cover retirement or disability. Nor has there been any arrangement for supplementary benefits for those who receive a part of their compensation from the Government and a part from the Smithsonian. To remedy these conditions I asked a committee of three employees to study the matter and draw up a plan for a retirement system to cover such employees.

In November 1938 such a plan was completed and submitted to an actuary for expert opinion. With certain suggested modifications, the plan was pronounced to be sound. It was then presented to the Permanent Committee of the Board of Regents, who recommended to the Board that it be put into operation. The Board so voted, and the retirement system therefore goes into effect on July 1, 1939.

The Smithsonian retirement system is in its general plan modeled on the Government system for Federal employees, but is modified to meet the special conditions of a private foundation such as the Smithsonian Institution. A retirement board is provided for, to be appointed by the Secretary, which, with his approval, shall decide questions arising under the operation of the retirement system.

With the adoption of this system, the retirement for age or disability of every employee of the Institution and its branches is definitely provided for.

#### NEW EXHIBITS IN THE SMITHSONIAN MAIN HALL

For many years past the only public exhibits in the Smithsonian building have been those of the division of graphic arts. They were

exhibited there only because of the crowded condition of the National Museum buildings, and the arrangement was intended to be only temporary. Having realized for some time that it would be desirable to set up in the Smithsonian main hall a comprehensive exhibit that would tell visitors the story of all Smithsonian activities, I took steps during the year toward the accomplishment of this aim.

As the Smithsonian Institution has grown and expanded its field of activity during the years, more bureaus have been placed under its administration, more buildings have been added to the Smithsonian group, and many new types of investigation have been undertaken. With the growing complexity of the organization, it has become very difficult for visitors to the several buildings to form a picture of the Institution as a whole or to get any definite conception of its functions and purposes.

To remedy this situation I appointed a committee to recommend plans for a series of exhibits in the Smithsonian main hall that would portray in popular form the work of the Institution in many branches of science, as well as the relationship between the parent Institution and the National Museum, National Gallery of Art, and all its other branches. It was emphasized that the exhibits should be of such a nature that they could be changed readily to keep them up to date.

It was planned also that as these exhibits developed, they would form an important part of the proposed centennial celebration of the Institution in 1946.

Carl W. Mitman, Head Curator of Engineering and Industries, was placed in charge of the exhibit project, and he selected to work with him as a committee, Messrs. Foshag, Friedmann, Setzler, and True of the Institution's staff. One meeting of the committee was held during the year to discuss preliminary plans, and it was expected to begin the preparation of the hall and the installation of the new exhibits during the coming fall and winter.

#### EIGHTH ARTHUR LECTURE

The Arthur lecture, under the auspices of the Institution, was provided for in the will of the late James Arthur, of New York, who in 1931 left to the Smithsonian Institution a sum of money, a part of the income from which should be used for an annual lecture on some aspect of the study of the sun.

The eighth Arthur lecture was given on February 21, 1939, by Dr. Herbert J. Spinden, curator of American Indian art and primitive cultures of the Brooklyn Museum, his subject being "Sun Worship." The lecture, held in the auditorium of the National Museum, constituted also the six hundred and eighty-fourth meeting of the Anthro-

ological Society of Washington. The paper will be published in the General Appendix to the Smithsonian Report for 1939.

#### EXPLORATIONS AND FIELD WORK

A number of States in the United States and many foreign countries were visited by Smithsonian representatives during the calendar year 1938, resulting in the acquisition of many specimens for the Institution's study series and in the collection of valuable scientific data for "the increase of knowledge."

On the invitation of the President, Dr. Waldo L. Schmitt participated in the cruise to the Galápagos Islands. In addition to a host of other scientific material—geological, botanical, and zoological—250 individual fish, representing about 60 different species, were brought back to the Museum for study and permanent preservation.

A. F. Moore, under my direction, established a new solar observatory on Burro Mountain, near Tyrone, N. Mex., where he hopes to obtain good observations. The new station will be particularly useful from December through February, when the other two stations lose many days. W. H. Hoover spent 5 months on Mount Wilson, Calif., experimenting with the growth of plants in nearly monochromatic rays selected from the solar spectrum, and measuring the distribution of radiation in the spectra of the brighter stars, using the 100-inch telescope.

Dr. R. S. Bassler studied some well-known fossil areas in southern England and obtained, in addition to specimens needed to fill certain gaps in the Museum's study series, information for more accurate labeling of invertebrate fossil material already in the collections. Dr. C. Lewis Gazin continued his investigation of occurrences of the earliest mammals and lizards in Utah and brought back a quantity of material representative of Paleocene and Cretaceous fauna, including one lizard specimen so nearly complete as to be worthy of permanent exhibition in the Museum. Dr. G. Arthur Cooper made a study of Middle Devonian strata in the Catskills of New York, and collected paleontological specimens from that region.

Dr. William M. Mann visited zoos in 15 European cities, where great progress has been made in the exhibiting of animals and where some interesting breeding experiments are being made. Dr. Remington Kellogg, on a visit to Norway, Sweden, England, and Scotland, examined and studied cetacean skeletal material in a number of the museums of those countries. W. M. Perrygo undertook a survey of a large part of Kentucky to collect bird and mammal specimens to add to the Museum's very meager representation from that State. C. R. Aschemeier obtained 28 turtles and 1,862 fish from Florida waters; and Dr. Leonard P. Schultz collected a variety of



fishes from the rivers and streams of Virginia. Capt. Robert Bartlett again conducted a cruise to northwest Greenland, and brought back specimens of marine life from the sea floor, as well as narwhals, walrus pups, and birds. Austin H. Clark continued his exhaustive study of the butterflies of Virginia.

Dr. Ersèbet Kol, of Szegéd, Hungary, reported the results of her study of the algae on the snowfields and glaciers of Alaska in 1936, which was made under a grant from the Smithsonian Institution.

Frank M. Setzler explored a cave in Richland Canyon near the Pecos River in southwestern Texas and unearthed many artifacts of the prehistoric cave dwellers of that region. Dr. Aleš Hrdlička, in his tenth season of work in the Far Northwest, directed an expedition to the Aleutian and the Commander Islands to obtain further light on the existence and extension in the Aleutian Islands of the pre-Aleut stock, to determine definitely whether or not the Commander Islands served as a part of the bridge for the coming of man from Asia, and to reexamine burial caves discovered in 1936-37. Dr. T. D. Stewart carried on excavations on the shore of the Potomac in Virginia, where he uncovered the main part of the ancient Indian village of Patawomeke. Dr. Waldo R. Wedel excavated a group of small mounds in Platte County, Mo., and investigated caves, reported to have disclosed traces of Indian occupancy, in southeastern Colorado. Dr. John R. Swanton continued his reconnaissance of the territory through which De Soto passed on his journey to the Mississippi. Dr. Frank H. H. Roberts, Jr., sought further information on Folsom man at the Lindenmeier site in Colorado, and at sites in Nebraska, Wyoming, and Saskatchewan, Canada, and obtained valuable data on this and associated cultures. Dr. Julian H. Steward spent several months in anthropological reconnaissance in Panama, Ecuador, and Peru, and visited many sites of archeological importance and historical appeal.

#### PUBLICATIONS

The Institution's publications constitute its primary means of diffusing knowledge. Its other methods comprise museum and art gallery exhibits, radio broadcasts, popular science news releases, and correspondence, but for world-wide dissemination of the results of its scientific researches it depends on its several series of publications. There are at present 13 different series, as follows:

##### Smithsonian Institution:

Annual Report (with general appendix reviewing progress in science).

Miscellaneous Collections.

Contributions to Knowledge (suspended).

Special Publications.

**National Museum:**

Annual Report.

Bulletin.

Proceedings.

Contributions from the National Herbarium.

**Bureau of American Ethnology:**

Annual Report.

Bulletin.

**Astrophysical Observatory:**

Annals.

**National Collection of Fine Arts:**

Catalog.

**Freer Gallery of Art:**

Oriental Studies.

The total number of publications issued by the Institution and its branches during the year was 99, of which 58 were issued by the Institution proper, 35 by the National Museum, and 6 by the Bureau of American Ethnology. Detailed information regarding these publications will be found in the report of the editor, appendix 11. The number of publications distributed was 162,030.

The printing and binding appropriation for the year covered by this report was increased slightly over that for the preceding year, and a further increase has been granted for the coming year, making the 1940 appropriation \$73,000. Although these small increases are of material assistance in catching up arrears of printing and binding, nevertheless the appropriations are still far short of the normal requirements. To keep pace with the manuscript output of the staff and with the binding requirements of the Smithsonian library, \$100,000 a year is needed. Anything short of this amount necessitates the holding over of many manuscripts each year, with consequent delay in the publication of the results of original scientific research. This delay—running sometimes to several years for the larger manuscripts—is detrimental to the morale of the scientific staff.

**LIBRARY**

A total of 11,913 volumes and pamphlets were added to the Smithsonian library during the year. These were received mainly through gift and exchange. The total holdings of the library now stand at 899,327, exclusive of thousands of unbound or incomplete publications. Outstanding among the many gifts was that of 1,636 publications on the history, art, science, and literature of China, from Mrs. Eugene Meyer. Other important gifts were 1,294 scientific journals from Dr. J. R. Swanton, and 879 from Henry Otten. The exchange work of the library involved the receipt of 24,600 packages of publications. In addition to handling this material, the staff made 25,176 periodical

entries, cataloged 7,298 publications, prepared and filed 41,676 catalog and shelf list cards, borrowed 2,516 publications and loaned 11,559, and substantially advanced the union catalog, in addition to many special activities. Volumes bound totaled 546, which was only a fraction of the number waiting to be bound. The chief need of the library, therefore, is increased allotments for binding.

Respectfully submitted.

C. G. ABBOT, *Secretary*.



## APPENDIX 1

### REPORT ON THE UNITED STATES NATIONAL MUSEUM

SIR: I have the honor to submit the following report on the condition and operation of the United States National Museum for the fiscal year ended June 30, 1939:

Funds provided for the maintenance and operation of the National Museum for the year totaled \$778,380. A compulsory administrative reserve of \$6,500 reduced this to \$771,880 actually available for the year, which was \$3,840 less than the amount available in 1938.

#### COLLECTIONS

New material added to the Museum collections was received in 1,766 separate accessions, totaling 368,082 individual specimens. For the most part these additions were gifts from individuals or represented expeditions sponsored by the Smithsonian Institution. They were distributed among the five departments as follows: Anthropology, 13,076; biology, 318,233; geology, 31,689; engineering and industries, 1,493; and history, 3,591. All the accessions are listed in detail in the full report on the Museum, printed as a separate document, but the more important are summarized below. The total number of catalog entries in all departments is now estimated to be 16,688,759.

*Anthropology.*—In archeology, a large number of stone implements were received, representing Indian sites in Maryland, Virginia, and Alaska; others, of Mousterian, Tardenoisian, and Acheulean age, came from South Africa. Over 9,000 stone, bone, and shell artifacts and ornaments, previously accessioned but not until now cataloged, resulted from the 1933–34 Smithsonian-C. W. A. investigations at the old Yokuts village site near Taft, Calif. Ethnological specimens of interest include a collection of Menominee birch-bark baskets and trays embroidered with porcupine quills, Aleut hunting paraphernalia, a large number of weapons of wild Philippine tribes, Persian and Moorish filigree and cutwork brasses, Chinese jewelry, and Eskimo artwork wrought in mammal and bird skins. About 550 ceramic specimens were received, including a collection of American art pottery (1850–1920) made by the late Dr. Marcus Benjamin, former editor of the National Museum. The famous “gold piano,” a Steinway concert grand No. 100000, which was used for 35 years

at the White House, was received by transfer. The division of physical anthropology received important material from sites in the Potomac River Valley, Alaska, and Georgia. An outstanding gift was received from the National Geological Survey of China—a set of casts representing the remains of the fossil ape man *Sinanthropus*.

*Biology*.—More than 318,000 biological specimens were accessioned during the year. Important marine-mammal material received, which was obtained through the cooperation of the United States Coast Guard, included two complete sets each of whalebone from the Australian and the Alaskan humpback whales; seven fetal skulls of blue whales and finbacks; a pair of lower jaws measuring 24 feet long and weighing a ton each, from a 92-foot Antarctic blue whale; and 13 skulls and skeletons of narwhals, walruses, seals, and porpoises from the 1938 Bartlett Greenland expedition. Many representative series of land mammals were also added, mostly from Africa, India, British Columbia, and the Southeastern United States.

Important avian accessions included birds collected in Veracruz by Dr. Alexander Wetmore, a collection of over 3,000 skins made by the late Dr. Stuart T. Danforth, about 1,050 birds from Kentucky collected for the Museum by W. M. Perrygo and associates, and 35 birds from Clipperton Island taken during the Presidential cruise of 1938.

Large increase in the Museum's herpetological series resulted from extensive collections made in Mexico by Dr. Hobart M. Smith, present incumbent under the Walter Rathbone Bacon traveling scholarship of the Smithsonian Institution. Another valuable collection of reptiles and amphibians received was made by Dr. W. Gardner Lynn in Jamaica. More than 3,200 fishes, mostly from Panama and Nicaragua, and including many holotypes and paratypes, were transferred from the United States Bureau of Fisheries, and 4,600 from the Tennessee Valley Authority. The Presidential cruise yielded 242 fishes from the Galápagos region. In addition, Dr. L. P. Schultz and E. D. Reid collected nearly 6,500 fishes in Virginia for the Museum. Other valuable ichthyological specimens came from the International Fisheries Commission, the Bass Biological Laboratory, the British Museum, and the Academy of Natural Sciences of Philadelphia.

The more important accessions of insects include the following: The Blackmore collection of Lepidoptera comprising about 7,000 specimens, of which 2,100 were recorded last year; about 600 South American insects collected by Edward Brundage; 75,000 miscellaneous insects transferred from the United States Bureau of Entomology and Plant Quarantine; the Charles R. Ely collection of Microlepidoptera—2,600 pinned specimens and 400 slides; a collec-

tion of 1,132 insects from the European Parasitic Laboratory in France; 14,000 miscellaneous specimens collected in western China by Dr. D. C. Graham; nearly 1,100 beetles from the British Museum; 15,000 Chrysomelidae from the Bowditch collection, by exchange with the Museum of Comparative Zoölogy; and valuable donations from the private collections of Father Edward Guedet (598 Lepidoptera and Coleoptera), A. B. Gurney (400 Ecuadorean Blattidae), and David G. Hall (3,700 muscoid flies).

The collections of marine invertebrates were notably augmented during the year by reason of the Presidential cruise of 1938 (more than 10,000 specimens) and the Bartlett Greenland expedition of 1938 (400 specimens). About 80,500 mollusks were added, including an important lot purchased through the Frances Lea Chamberlain fund and containing cotypes of 139 species of Chinese freshwater mussels of the Heude collection. About 40,000 mollusks were received from the Tennessee Valley Authority. The United States Biological Survey transferred 2,232 specimens of mollusks from Alaska.

About 50,500 plants were added to the herbarium collections, the largest lot being 11,000 specimens collected from little-known parts of Colombia by E. P. Killip of the Museum staff.

*Geology.*—Important additions to the mineralogical and petrological series were made possible by several Smithsonian funds. Among many purchased through the Roebling fund was a 153-pound topaz crystal from Brazil, as well as several rare minerals from classical European localities. Several fine suites came through the Canfield fund, the most important of which contains the finest phenacites, fluorites, aquamarines, and other minerals from Mount Antero, Colo. Through the auspices of the Chamberlain fund there were procured unusually cut specimens of topaz from Brazil and zircon from French Indochina. Forty-two meteorite specimens, 26 of which are credited to the Roebling fund, were added during the year. These represented 25 falls new to the Museum collection.

The largest and most important accession in the field of stratigraphic paleontology was the gift by John M. Nickles of his collection of Paleozoic fossils from the Ohio and Mississippi Valleys. This collection, containing about 10,000 specimens, largely bryozoan, represents many years of search and contains a wealth of excellent and carefully labeled material including many types. Two collections were made for the Museum by Dr. G. Arthur Cooper—one, numbering over 5,000 specimens, representing the Ordovician of the southern Appalachians, and the other comprising an equally large assemblage of Devonian fossils from the Hamilton group of the Catskill foothills in Pennsylvania.



Many fossil vertebrates, both mammalian and reptilian, were added as a result of a field expedition to Utah, including a nearly complete articulated skeleton of a new family of extinct lizard, a well-preserved skull of *Crocodylus*, and a complete shell of the turtle *Baena inflata*.

*Engineering and industries.*—In aeronautics the outstanding accession was a collection of relics of the aeronautical work of Samuel P. Langley, received as a deposit from the Smithsonian Institution. The material includes a catapult for launching flying-machine models, meteorological instruments, stuffed birds and birds' wings, propellers, engine parts, and many other devices used by Dr. Langley between 1894 and 1906 in his exhaustive researches in the field of mechanical flight. To the collection of aircraft engines was added an original and complete Union gasoline engine of the World War period, presented by Stanley H. Page. Several interesting models of historic Army and Navy airplanes were accessioned, as well as models of racing and commercial planes. Many miscellaneous objects pertaining to transportation, communication, metrology, mining and metallurgy, tools and crafts, medicine and public health, and chemistry continue to come in as gifts and loans, always welcome additions to these sections. To the graphic arts display many examples of fine bookmaking, photoengraving, printing, and photography were received, as well as some photographic and motion-picture equipment of value historically.

*History.*—Nearly 3,600 objects of historic and antiquarian interest were accessioned, including portraits, mementos, and medals of such American historic characters as Maj. Gen. Winfield Scott, Admiral George Dewey, George Sherman Batcheller, and Matthew Fontaine Maury. The numismatic collection was increased by 530 coins and medals and the philatelic collection by 2,598 foreign postage stamps, cards, and envelopes transferred from the Post Office Department.

#### EXPLORATIONS AND FIELD WORK

Scientific investigations in the field during the year were varied in kind and resulted in highly important additions to knowledge and in the contribution of many valuable specimens to the national collections. The work was financed principally by grants from the private funds of the Smithsonian aided by contributions from friends of the Institution.

*Anthropology.*—On August 25, 1938, Dr. Aleš Hrdlička, Curator of Physical Anthropology, completed his tenth season of work in Alaska and the Aleutian Islands. The sea transportation throughout these investigations was furnished by the United States Coast Guard, which deserves all credit for its active cooperation. The main ob-

jectives during this expedition were to verify the existence of a pre-Aleut stock, characterized by oblong-headed skeletons; to determine definitely whether the Commander Islands in the U. S. S. R. could have served as a second migration route for the coming of man from Asia; and to reexamine the burial caves on several islands of the Aleutian Chain. Rock shelters on Shiprock Island were first revisited, and several days were spent on the south shore of Amlia and the little island of Ilak. Three weeks were occupied in the excavation of pre-Aleut sites on Amchitka Island, and several more weeks were devoted to the extensive site near the village of Nikolski on the island of Umnak. A large series of skeletons was obtained, together with many bone and stone implements, large bone harpoon points, and several decorated ivory artifacts. From Umnak the expedition was transported on the Coast Guard vessel *Shoshone* to the Commander Islands, where the party spent 5 days. Dr. Hrdlička was able to examine all the more likely locations for prehistoric settlements. After careful examination of these sites, he was convinced that all dated from the Russian period, and the burials located were found to be those of Aleuts brought there in the early part of the nineteenth century by the Russians. No trace of pre-Russian habitations could be found on either Bering or Copper Islands. This substantiated the previous investigations of Dr. Leonhard Stejneger, who between 1882 and 1922 made several visits to the Commander Islands. During the return trip several stops were made at various islands in the Aleutian Chain. This year's explorations completed the present series in the Alaska work, begun by the Smithsonian Institution in 1926. The results will contribute substantial facts to more detailed investigations.

At the close of the fiscal year Dr. Hrdlička was visiting the U. S. S. R. by way of Europe in order to examine and study the skeletal material and associated material culture on exhibition in the various large museums. He was fortunate in finding sizeable collections made by the Russians from various sections of Siberia, which may contribute to his Alaskan research.

During September and October Dr. T. Dale Stewart, Associate Curator of Physical Anthropology, continued excavations at the Indian site on Potomac Creek in Stafford County, Va. In describing his trip up the Potomac River in 1608, Capt. John Smith stated that one of the Indian villages on the west shore, named Patawomeke, had 160 to 200 able men (upward of 1,000 inhabitants); it seems thus to have been the largest village along the river at the time, but there is little information regarding the village, and the date of its abandonment by Indians remains unknown. Inspection of Smith's map of the Potomac River, on which Patawomeke appears as a king's resi-

dence, shows that this village was situated on the north side of what is now Potomac Creek, near Marlboro Point. The Virginia land records indicate that the land constituting the "Potomac neck" was patented around the middle of the seventeenth century. About this time "Marlborough Town," with a courthouse, came into existence less than a mile away from the Indian site.

Archeologically the old Indian village site is important because of its known contact with the Jamestown colonists. No extensive excavations were undertaken, however, until 1935, when the late Judge William J. Graham became interested. Working intermittently during the next 2 years, until his death on November 10, 1937, Judge Graham succeeded in locating three large ossuaries, two small burial pits, and many post holes and trenches. From the largest ossuary and one of the small burial pits Judge Graham recovered European objects—glass beads, iron, copper, and a silver cup made at the beginning of the seventeenth century. In another ossuary he found what is probably the largest human skull yet recorded.

Following Judge Graham's death, and in accord with his wishes, his collections from Patawomeke and their accompanying records were presented to the National Museum. Early in 1938 permission was obtained to continue the investigation begun by Judge Graham. By the close of the season Dr. Stewart had determined the outlines of what is probably the main part of the Indian site. Located on a 30-foot bluff just above a spring that is still in use, the village was surrounded by one or more circular stockades. What appears to have been the inner stockade had a diameter of about 175 feet. He was not able to trace completely the outer concentric rows of post holes, but these may extend the diameter of the village to 280 feet or more. At the close of the present fiscal year Dr. Stewart resumed the excavations in order to complete as far as possible the outline of the famous stockaded village.

Dr. Waldo R. Wedel, Assistant Curator of Archeology, during July and August 1938 continued the archeological survey of Kansas. Scattered along the timbered bluffs of the Missouri River from its mouth to a point near St. Joseph, Mo., are groups of small mounds in which excavation has revealed stone enclosures containing burials. Their age, origin, and tribal identity have long resisted interpretation, though from the uniformity of construction it has been thought by some that they were left by a single people moving up or down the valley. Below the mouth of the Osage River such pottery and other materials as have been found in the chambers suggest affinities with remains usually termed "Woodland" in the eastern United States. Farther west there is less internal evidence, so that assignment of those in the Kansas City region to a given archeological



horizon had been well-nigh impossible. During the summer of 1937, however, Dr. Wedel's investigations in southern Platte County had disclosed village sites with artifacts evidently related to the Hopewellian complex of the upper Mississippi drainage; concurrently amateurs nearby reported the finding of similar pottery in a stone enclosure. With renewed hopes that some of the mystery surrounding these structures might finally be dispelled, excavations were resumed along the north bank of the Missouri between Parkville and Farley.

Nine enclosures were examined; all had been dug into previously and two were so hopelessly plundered as to give no reliable information. From the others it was established that the chambers vary from 6 to 9 feet across, are square to oval in outline, and range from 2 to nearly 4 feet deep. They consist of a carefully laid up mortarless wall of horizontal slabs, against which other large flat rocks were leaned. The area thus covered was about 15 feet in diameter. Two mounds yielded the dismembered skeletons of perhaps a dozen individuals, apparently of a medium-statured long-headed people. Artifacts were very rare and inconclusive, but it was noted that shell-tempered smooth and incised pottery occurred in portions of the structures which had been disturbed in pre-white days. Although direct proof is mostly lacking, it seems likely that the original structures in this vicinity were built by a people with Hopewellian affinities who were probably among the earliest potters and farmers in the eastern plains.

Near Farley, on the right bank of the Platte River, a prehistoric village and cemetery with different cultural connections was explored. Here the natives dwelt in earth-covered partly subterranean structures whose roofs were borne by four central posts. Shell-tempered pottery, often with incised lines, was abundant. Present also are small notched and unnotched points, scrapers, knives, drills, paired sandstone shaft-buffers, the polished adz or gouge, effigy pipes, fine-grained sandstone ornaments, bone awls, longitudinally pierced deer phalanges for cup-and-pin game, shell hoes, twisted cordage, maize, beans, pumpkin and sunflower seeds, and a few animal bones. In the nearby cemetery were more than 80 primary extended, bundle, and flexed burials, apparently of a short broad-headed population. Pottery generally indicates close relationships to that found on certain so-called middle Mississippi sites in southern Illinois and elsewhere.

On August 14, following intensive excavations in western Missouri, Dr. Wedel proceeded to Pueblo, Colo., to investigate caves reported to have disclosed traces of Indian occupancy. About 2 weeks were devoted to reconnaissance in the Purgatoire and tribu-

tary canyons, Las Animas County, and to brief inspection of several open sites in Baca County, heart of the "dust bowl," where three open camp sites were visited. From badly blown fields local collectors claim to have taken Folsom and Yuma artifacts and, in one instance, remains of an extinct camel. Miscellaneous flints, scrapers, knives, projectile points, and hammerstones were gathered, but nothing of demonstrably ancient date. On one site were small scattered piles of burnt and cracked stones; others showed black soil areas suggestive of hearths. All sites examined were near dry watercourses or on old dried-up shallow lake beds. In general it was found that (1) local rock shelters are mostly small and shallow, giving little promise of producing cultural remains as old as Folsom or Yuma are usually believed to be; (2) local collectors unanimously aver that such ancient remains are exceedingly rare in the cave and canyon country, though many occur in the sandy blown-out region from Baca County north; (3) occasional rock shelters do contain cultural vestiges, which, while apparently not geologically ancient, certainly merit careful scientific scrutiny before untrained excavators destroy the record. On June 8, 1939, Dr. Wedel returned to central Kansas to continue work of recovering an outline of the various prehistoric and historic Indian cultures.

Henry B. Collins, Jr., at the request of the National Park Service, spent a short time in checking the purported site of the former Chickasaw village of Ackia, near Tupelo, Miss. During this brief investigation he was able to verify the documentary records concerning this important village, which played an important role in the decisive battle of Ackia.

*Biology.*—The Presidential cruise of 1938 in the U. S. S. *Houston* resulted in the addition of important collections to the National Museum. At the invitation of President Roosevelt, Dr. Waldo L. Schmitt, Curator of Marine Invertebrates, served as naturalist on this cruise, which covered 5,888 miles in 24 days, from July 16 to August 9. Fourteen stops were made for fishing and scientific collecting, distributed in the territories of five different nations: Mexico (Baja California and Socorro Island); France (Clipperton Island); Ecuador (Galápagos Islands); Costa Rica (Cocos Island); and Colombia (Old Providence Island in the Caribbean). About 10,000 specimens were obtained, including 250 specimens of fishes representing 60 different species. More than 30 new species, subspecies, and varieties of animals and plants were discovered. Outstanding among them was a new genus and species of palm from Cocos Island, which was named *Rooseveltia frankliniana* by the describer, Dr. O. F. Cook, of the United States Department of Agriculture. Throughout the cruise the President took an active part and a lively interest in the collecting.

During April, at the invitation of Capt. G. Allan Hancock, Dr. Schmitt participated in a reconnaissance of the marine fauna of the north coast of South America and some of the adjacent islands. Stops were made in the Republic of Panama, Colombia, Venezuela, and the islands of Trinidad and Tobago, as well as at some of the smaller and lesser known islands in that region. A considerable collection of Crustacea and other marine forms was made. The macruran and anomuran crustaceans, about 7,000 in number, were brought back to the Museum for study and report.

As in past years, Capt. Robert A. Bartlett made a summer cruise to West Greenland and the adjacent Arctic regions. Captain Bartlett has always most generously cooperated with the Museum and has brought back from his cruises an extensive series of marine invertebrates and fish life from these northern waters. This year was no exception, and about 400 specimens came to the Museum as a result of the cruise. A commercial otter trawl was used successfully for collecting specimens not otherwise obtainable.

Dr. Alexander Wetmore, Assistant Secretary, collected in March and April in southern Veracruz, Mexico, and brought back valuable collections, principally birds, from this region whence the Museum has heretofore had little material. The work was entirely in the tropical lowlands, with a base at the archeological camp of M. W. Stirling near Tres Zapotes. W. M. Perrygo, H. Deignan, and G. Rohwer collected in Kentucky from September 15 to November 15, 1938, and obtained important material especially of mammals and birds. The work was renewed in the spring of 1939 when Perrygo and Rohwer spent about 3 months in the field in North Carolina.

Dr. Leonard P. Schultz, assisted by E. D. Reid, continued his study of the fresh-water fish fauna of Virginia by three field trips during the summer of 1938. Several rare and interesting species were collected and unexpected facts relating to geographical distribution were obtained.

Dr. Schultz left Washington on March 25, 1939, for an extended expedition to the South Pacific as naturalist on a naval vessel, the plan being to collect fishes and what other material time might permit. He had not returned at the close of the fiscal year.

Austin H. Clark continued a survey of the butterfly fauna of Virginia. Two forms new to the State were found during the last half of the summer of 1938 and a third in the spring of 1939. One species described from "Virginia" in 1789 was found in what is presumably the type locality after a lapse of 150 years. Many other interesting facts relating to distribution and habits were discovered.

E. P. Killip, Associate Curator of Plants, spent about 3½ months in Colombia from January to early May 1939, for the purpose of collecting in little-explored parts of that country in connection with



his work on the flora of Colombia. Members of the staff of the Colombian Instituto Botánico accompanied by Mr. Killip on various excursions. Most of the time was spent in the Pacific lowlands, the regions visited including Gorgona Island, Bahia Solano, the Dagua Valley, and the upper San Juan River region in the heart of the Chocó. With Cali in the Cauca Valley as a base, several trips were made to the Western Cordillera. A few days were spent along the Quindío Trail, in the Central Cordillera, where special attention was given to the wax palms. Accompanied by A. H. C. Alston, of the British Museum (Natural History), Mr. Killip explored the region about Villavicencio in the Orinoco drainage basin; excursions were also made from Bogotá to various points in the Eastern Cordillera. Altogether, about 2,600 numbers of plants were collected, these including many duplicates.

*Geology.*—Dr. R. S. Bassler, Head Curator of Geology, during a vacation trip to England in August and September 1938, made certain researches in the well-known southern England fossil areas extending from Cornwall on the west to the Chalk Cliffs at Dover. Excursions were made to various parts of the English lowlands, with brief intervals spent at the British Museum (Natural History) to study and check formation and locality occurrences of Paleozoic crinoids. The field studies included particularly the Subcarboniferous limestone area near Bristol, a Mesozoic locality at Lyme Regis, and various chalk outcrops south and east of London. The most valuable result of the trip was the information obtained for more accurate labeling of the National Museum's collection.

In July 1938 Dr. G. A. Cooper, Assistant Curator of Stratigraphic Paleontology, went to Stroudsburg, Pa., and there met Dr. Bradford Willard, of the Pennsylvania Geological Survey, for paleontological work at various localities. They spent a week around Stroudsburg and in southeastern New York examining Devonian strata. Later Dr. Winifred Goldring, State paleontologist of New York, joined Dr. Cooper in a study of detailed sections of the Hamilton Group at Port Jervis and at various other localities between that city and Albany, N. Y. At Catskill, G. H. Chadwick joined the party. The object of the trip was to learn the sequence of strata in the Hamilton of eastern New York and to discover if possible the true top of the Hamilton in the Catskills southwest of Albany. All but the latter objective was attained. At the end of the New York work Dr. Cooper joined Dr. Willard in east-central Pennsylvania to study sections in the Hamilton and Tully strata. The entire work required about 6 weeks.

On May 2, 1939, Dr. Charles Butts and Dr. Cooper met Dr. Josiah Bridge, of the Geological Survey, in Bristol, Va., and from there continued to Montevallo, Ala. After studying Ordovician sections in

Alabama the party went on into Georgia for a few days, then to Chattanooga, Tenn. Following a week's work in eastern Tennessee, the men located for 10 days in Virginia to study the Ordovician rocks. Many fossils to be used in studies of the Chazyan brachiopods were collected.

Dr. E. O. Ulrich, Associate in Paleontology, made three trips partly under the auspices of the Geological Survey, but largely at his own expense, to forward his studies of Appalachian Valley Lower Paleozoic stratigraphy. These comprised a journey to Strasburg, Va., and vicinity in October 1938 and a 2 months' visit to the southern Appalachian Valley in the spring of 1939. This was followed by a short trip to the Appalachian Valley in Pennsylvania late in the fiscal year. All these investigations were highly satisfactory in the new stratigraphic information gained, as well as in checking doubtful problems of the past and in securing important collections.

C. W. Gilmore, Curator of Vertebrate Paleontology, accompanied by Dr. Remington Kellogg, Assistant Curator of Mammals, made a short trip to investigate reported cetacean discoveries along the York River, in southern Virginia, and along the Coneto River, near Tarboro, N. C. They found the cetacean remains at both of these localities to be very fragmentary.

Dr. C. L. Gazin, Assistant Curator of Vertebrate Paleontology, made an important expedition in the Cretaceous, Paleocene, and Eocene of Utah, which met with gratifying results. From the Upper Cretaceous of the North Horn region there were obtained additional remains of extinct lizards, including one articulated skeleton considered the most complete found in North America. From newly discovered Paleocene deposits about 50 additional specimens were obtained, including several new genera and species. From the Eocene of the Uinta Basin a representative mammalian collection was obtained, including a very fine skull and lower jaws of *Crocodylus*, as well as some good turtle specimens. These materials are an especially desirable addition to the Museum collections, which were previously weak in specimens from the Uinta formation.

#### MISCELLANEOUS

*Visitors.*—A total of 2,233,345 visitors were recorded at the various Museum buildings during the year. Though this number is 174,825 less than the previous year, it still represents a substantial increase over the number of visitors during the years following the economic decline of 1929. This year the high months were August 1938 and April 1939, when 320,746 and 337,892 visitors, respectively, were recorded. The attendance in the four Museum buildings was as follows: Smithsonian Building, 334,909; Arts and Industries Build-

ing, 1,016,048; Natural History Building, 709,139; and Aircraft Building, 173,249.

*Publications and printing.*—The sum of \$24,000 was available during the year for the publication of the Museum Annual Report, Bulletins, and Proceedings. Thirty-five publications were issued—the Annual Report, 1 volume (vol. 6) of Bulletin 100 complete, 2 Contributions from the United States National Herbarium, 4 Bulletins, and 27 separate Proceedings papers. These made a total of 2,844 octavo pages and 283 plates, an increase of 1,404 pages and 41 plates over last year. The Bulletins issued were as follows: No. 170, Life Histories of North American Birds of Prey, Part 2, by Arthur Cleveland Bent; No. 172, Birds from Siam and the Malay Peninsula in the United States National Museum Collected by Drs. Hugh M. Smith and William L. Abbott, by J. H. Riley; No. 173, Catalog of the Mechanical Collections of the Division of Engineering, United States National Museum, by Frank A. Taylor; No. 174, Life Histories of North American Woodpeckers, by Arthur Cleveland Bent.

Volumes and separates distributed during the year to libraries and individuals throughout the world aggregated 69,658.

*W. P. A. assistance.*—The Works Progress Administration of the District of Columbia continued the assignment of workers to Museum offices, although during the course of the year the number decreased from 166 to 147. The service performed totaled 174,402 man-hours and embraced many types of work in all departments, such as checking, labeling, and repairing library material; preparing drawings and photographs; typing notes and records; model making and repair; preparing, mounting, cataloging, and labeling specimens; drafting; translating; computing; and repair of Indian pottery.

*Special exhibitions.*—Fourteen special exhibitions were held during the year under the auspices of various scientific, governmental, and educational agencies. In addition, the department of engineering and industries sponsored 23 special exhibits—3 in engineering, 8 in graphic arts, and 12 in photography.

#### CHANGES IN ORGANIZATION AND STAFF

A reorganization effective July 1, 1938, changed the designation of the former Department of Arts and Industries to Department of Engineering and Industries, and that of the Division of Textiles to Division of Crafts and Industries. On June 16, 1939, Dr. Wallace E. Duncan was appointed to this division as Assistant Curator of the Section of Chemical Industries. William C. Dawson was appointed scientific aid in the Division of Graphic Arts on June 1, 1939. In the Head Curator's office Miss Mary C. Wallace was advanced to clerk-stenographer on February 11, 1939.



In the Department of Anthropology the following personnel changes were made: Dr. Willard W. Hill was appointed on February 16, 1939, Associate Curator of Ethnology, to fill the position vacated by the transfer of Henry B. Collins, Jr., to the Bureau of American Ethnology. Dr. T. Dale Stewart was advanced to Associate Curator, Division of Physical Anthropology, on April 1, 1939.

In the Department of Biology Conrad V. Morton was advanced to Assistant Curator, Division of Plants, on March 16, 1939. Herbert G. Deignan was appointed to the Division of Birds as scientific aid on August 16, 1938. On October 1, 1938, Miss Marion F. Willoughby became senior scientific aid, Division of Stratigraphic Paleontology, Department of Geology. Miss Mary C. Breen, after serving as collaborator, Division of Mollusks, for nearly 29 years, resigned on February 13, 1939. Dr. Benjamin Schwartz was made honorary collaborator in the Section of Helminthology on February 8, 1939.

Other changes in staff and in personnel status among the Museum employees were as follows: Mrs. Dorothy Chamberlain was appointed senior clerk in the Associate Director's office to fill the vacancy caused by the resignation of Mrs. Margaret G. Shoup. In the editor's office, Miss Gladys O. Visel's designation was changed to editorial clerk on May 1, 1939. Michael Cahillane was appointed captain of guard and George F. Shaw lieutenant of guard on August 1, 1938, and William B. Stiles was made principal guard on January 7, 1939.

Eight employees were retired during the year under the Civil Service Retirement Act: Three for disability—Clark M. Braden, guard, on November 30, 1938; Mrs. Bessie L. Cartter, charwoman, on August 31, 1938; and Mrs. Eva M. Wright, charwoman, on March 11, 1939. Three on account of age—Clarence E. Bowman, guard, on July 31, 1938, with 17 years 2 months service; George W. Leonard, under mechanic, on July 31, 1938, with 16 years 2 months services; and Charles H. Chapin, guard, on May 31, 1939, with 15 years 4 months service. Two by optional retirement—George Johnson, captain of watch, on July 31, 1938, with 42 years 6 months service; and Mrs. Hattie J. Brady, attendant, on February 28, 1939, with 34 years service.

The Museum lost through death Glen E. Johnson, guard, on December 21, 1938, and two honorary workers long associated with its activities: Hugo Worch, custodian of the Section of Musical Instruments, on November 14, 1938, and B. Preston Clark, collaborator in the Division of Insects, on January 11, 1939.

Respectfully submitted.

ALEXANDER WETMORE, *Assistant Secretary.*

Dr. CHARLES G. ABBOT,

*Secretary, Smithsonian Institution.*

## APPENDIX 2

### REPORT ON THE NATIONAL GALLERY OF ART

SIR: Pursuant to the provisions of section 5 (d) of Public Resolution No. 14, Seventy-fifth Congress, approved March 24, 1937, I have the honor to submit, on behalf of the Board of Trustees of the National Gallery of Art, the second annual report of the Board covering its operations for the fiscal year ended June 30, 1939.

Under the aforementioned joint resolution, Congress appropriated to the Smithsonian Institution the area bounded by Seventh Street, Constitution Avenue, Fourth Street, and North Mall Drive (now Madison Drive) Northwest, in the District of Columbia, as a site for a National Gallery of Art; authorized the Smithsonian Institution to permit The A. W. Mellon Educational and Charitable Trust, a public charitable trust, established by the late Hon. Andrew W. Mellon, of Pittsburgh, Pa., to construct thereon a building to be designated the "National Gallery of Art"; and created, in the Smithsonian Institution, a bureau to be directed by a board to be known as the "Trustees of the National Gallery of Art," charged with the maintenance and administration of the National Gallery of Art. The Board is comprised of the Chief Justice of the United States, the Secretary of State, the Secretary of the Treasury, and the Secretary of the Smithsonian Institution, ex officio, and five General Trustees. The General Trustees first taking office, appointed on June 24, 1937, by the Board of Regents of the Smithsonian Institution, were: the late Andrew W. Mellon, David K. E. Bruce, Duncan Phillips, the late S. Parker Gilbert, and Donald D. Shepard.

The late Andrew W. Mellon, the donor of the first great art collection given to the Gallery, as well as the funds for the erection of the Gallery building, died on August 26, 1937. Also, the late S. Parker Gilbert died on February 23, 1938. In August 1938 Paul Mellon was elected to serve the unexpired term of his father, the late Andrew W. Mellon; and Ferdinand Lamot Belin was elected to serve the unexpired term of the late S. Parker Gilbert. The following resolutions were adopted by the Board at its annual meeting held on February 13, 1939:

That the Board of Trustees of the National Gallery of Art, in recording the death on August 26, 1937, of Andrew William Mellon, founder of this Gallery and a member of this Board, express their profound sorrow at the loss of one

whose foresight and generosity were responsible for the establishment of this Gallery along lines truly national in scope; who, during the course of a long life of business activity and public service, found time to bring together the magnificent collection of art which, with the building now in course of erection and an endowment for future acquisitions, he has, with unparalleled generosity, given to his country for the benefit of all and "for the purpose of encouraging and developing a study of the fine arts." While he sought to efface himself in connection with the Gallery in order that others might be encouraged to contribute to this great national undertaking, he will not be forgotten but will always be remembered with gratitude by those who will benefit from what he has done, and his "story will live on, woven into the stuff of other men's lives."

That the Board of Trustees of the National Gallery of Art express their profound sorrow at the death on February 23, 1938, of Seymour Parker Gilbert, a Trustee of this Gallery, whose sound judgment and experience obtained during his years of public service peculiarly fitted him to be a useful and distinguished member of the Board. His loss will be greatly felt in this work as in many other fields of activity to which he gave generously of his time and strength.

At the annual meeting of the Board held February 13, 1939, Paul Mellon was elected President, and David K. E. Bruce was elected Vice President of the Board. Also, at this meeting Donald D. Shepard was elected a member of the executive committee, and Secretary Hull and David K. E. Bruce and Ferdinand Lamot Belin were elected members of the finance committee, Mr. Bruce to serve as vice chairman of the finance committee.

At a special meeting of the Board, held May 26, 1939, the Trustees adopted a seal and also passed appropriate resolutions relating to the administrative duties and responsibilities of officers of the Gallery. The Board accepted with regret the resignation of Paul Mellon as President, and elected David K. E. Bruce President to fill the vacancy thus occasioned, and also elected Ferdinand Lamot Belin Vice President to fill the vacancy in the office of Vice President occasioned by the appointment of Mr. Bruce as President. Donald D. Shepard was appointed General Counsel for the National Gallery of Art to serve in that capacity, in addition to his duties as Secretary and Treasurer of the Gallery. David E. Finley is serving as Director of the Gallery, having been elected to that position by the Board last year.

At an earlier meeting of the Board, held August 31, 1938, the Board appointed Harry A. McBride, of Pontiac, Mich., to fill the office of Administrator of the National Gallery of Art. Mr. McBride has served a number of years in the Foreign Service of the United States in an administrative and executive capacity, his last post being as Assistant to the Secretary of State. At the same meeting, John Walker, of Pittsburgh, Pa., was appointed Chief Curator of the National Gallery of Art. At the time Mr. Walker was serving as Associate in Charge of Fine Arts at the American Academy in



Rome. Stephen Pichetto, of New York City, well-known authority and expert in the restoration of art, was appointed on May 26, 1939, as consultant restorer of the National Gallery of Art.

On May 26, 1939, the General Trustees chose Joseph E. Widener, of Philadelphia, Pa., to fill the vacancy occasioned by the resignation of Paul Mellon as General Trustee to serve for the remainder of Mr. Mellon's term expiring July 1, 1947, and Samuel H. Kress, of New York, was elected and chosen as a General Trustee to serve until July 1, 1949, to succeed Donald D. Shepard, whose term was to expire July 1, 1939.

The most notable event of the year was the gift by Samuel H. Kress and the Samuel H. Kress Foundation of a collection of Italian paintings and sculpture, acclaimed by experts as one of the greatest private collections of Italian art in the world. In his letter of gift to the Board of Trustees of the National Gallery of Art, Mr. Kress said:

Over a period of many years, I have quietly acquired a collection of paintings and sculpture, particularly works of art representative of the Italian School, with the object of some day donating my collection to the public for exhibition and study in our country. Besides bringing from Europe as many as I could, I have made great effort to keep in this country paintings and sculpture that would otherwise very probably have been returned to Europe and have become permanently part of the great European galleries. I have done this in order that my Italian collection might include as many works as possible of the great Italian masters.

The collection includes important works of many of the outstanding masters of the Italian School, such as Giotto, Duccio, Simone Martini, Sassetta, Matteo di Giovanni, Neroccio, Fra Angelico, Masolino, Perugino, Filippo Lippi, Piero di Cosimo, Ghirlandaio, Gentile da Fabriano, Cossa, Mantegna, Giovanni Bellini, Giorgione, Titian, Tintoretto, and others; also sculpture by Desiderio da Settignano, Luca and Andrea della Robbia, Verrocchio, Rossellino, Benedetto da Maiano, Amadeo, Sansovino, and others.

I have followed with interest the establishment of the National Gallery of Art in Washington and the construction of the great edifice there to house the Nation's works of art. I have also noted with pleasure the Nation-wide interest exhibited in this Gallery, established by the late Andrew W. Mellon and dedicated to the encouragement and development of the study of the fine arts.

Because the Gallery and the works of art which it will contain will be for the benefit of all the people of the United States and will be accessible to so many citizens of this and other countries visiting our National Capital, it seems most suitable that others should contribute to the collection being formed there; and it is my wish, therefore, that the works of art which I have acquired should become part of the National Gallery Collection, and be exhibited in the gallery building now being erected in Washington. Realizing what it would mean to the Gallery at its opening, I decided some months ago that if the arrangements of the gift were satisfactory I would give up the pleasure of having possession of the collection in my home, and arrange to consummate the gift so that rooms may be prepared for the placing of the objects of art for the opening of the Gallery.

Following a letter from Mr. Kress to the President of the United States, advising him of the gift, President Roosevelt replied as follows:

My DEAR MR. KRESS: Your decision to present to the people of the United States your priceless art collection is in keeping with the broad spirit of the Congress in establishing the National Gallery of Art, primarily as the home of the Mellon Collection. It has been the hope of those who have the welfare of the National Gallery at heart that other private gifts would supplement the treasures included in Mr. Mellon's Collection.

I am, therefore, most grateful for your letter of July 1st, in which you embody a letter to the Board of Trustees of the National Gallery of Art, setting forth the generous terms of your proposed gift. Not only are the treasures you plan to bestow on the Nation incalculable in value and in interest, but in their bestowal you are giving an example which may well be followed by others of our countrymen, who have in their stewardship art treasures which also happily might find a home in the National Gallery.

I feel that your proposed donation is a decided step in the realization of the true purpose of the National Gallery.

Very sincerely yours,

(Signed). FRANKLIN D. ROOSEVELT.

The collection was gratefully accepted by the Board and will be installed in special rooms and settings before the formal opening of the Gallery. As can be seen from the list which is attached to this report, almost all the important Italian masters from the thirteenth through the eighteenth centuries are represented, and in the opinion of experts no other private collection and very few museums can illustrate in so complete a manner as Mr. Kress' collection the development of the Italian school of painting during the Renaissance period. Indicating the high value placed on the Kress collection by experts in the field of art, Sir Kenneth Clark, Director of the National Gallery of Art in London, made the following observation after seeing the collection:

There can be no doubt that it is one of the most remarkable collections of fourteenth and fifteenth century Italian art ever formed. It is very comprehensive, containing masters hardly represented in any other American collection; and Mr. Kress has managed to assemble a number of real masterpieces of a kind one had supposed no longer available.

Other well-known authorities and experts, such as Dr. Wilhelm Suida, Count Contini Bonacossi, of Florence, Prof. Roberto Longhi, F. Mason Perkins, and Bernard Berenson have all publicly praised the quality and scope of this magnificent collection.

The paintings and sculpture in the Kress collection will be exhibited in such a way as to show both the growth of the different schools—Florentine, Sienese, Central Italian, North Italian, and Venetian—and the chronological development of Italian art as a whole. With Mr. Kress' collection and the paintings and sculpture donated by Mr. Mellon, the National Gallery will immediately become a center for the

study of art in the United States, and one of the great galleries in the world.

There were no other acquisitions during the year. Other works of art were offered as gifts, but were not accepted because in the opinion of the Board they were not considered desirable for the Gallery.

During the year the Board loaned the following paintings from the Mellon collection to the Masterpieces of Art Exhibition at the New York World's Fair for the period April 30 to October 31, 1939: Rembrandt's "Self Portrait"; Hals' "An Old Woman Seated"; and Terborch's "A Gentleman Greeting a Lady"; also the following paintings from the Mellon collection to the Golden Gate International Exposition at San Francisco, for the period February 1 to December 31, 1939: Rembrandt's "A Young Man at Table"; Hals' "Portrait of Balthasar Coymans"; Pieter de Hoogh's "A Dutch Courtyard."

During the year the act of March 24, 1938, providing for the construction and maintenance of the National Gallery of Art, was amended by Congress by Public Resolution No. 9, Seventy-sixth Congress, approved April 13, 1939, so as to authorize the appropriation of public funds, prior to the completion of the Gallery building, for administrative and operating expenses and equipment preparatory to the opening of the Gallery to the public. Under this authorization, the budget of the National Gallery of Art, insofar as public funds for the fiscal year 1940 are concerned, after approval by the Board at its annual meeting on February 13, 1939, was submitted to Congress and the sum of \$159,000 for the above purposes was appropriated, the amount being included in the Act approved June 30, 1939.

Under this appropriation, the Board immediately proceeded to establish temporary offices for the Gallery in quarters furnished by The A. W. Mellon Educational and Charitable Trust. A nucleus of the permanent staff was employed on July 1, 1939. This staff will be engaged in preparatory work in the compilation of catalogs for the Gallery, in working with the Civil Service Commission on the classification of positions for the complete permanent staff, in the purchase of furniture and supplies to be placed in the Gallery building upon its completion, and in setting up the accounting systems required by the Board and by Government regulations. This preparatory work will enable the Board to expedite the opening of the Gallery to the public as soon as the building is completed and the collections arranged therein.

Work on the building and construction of the Gallery is proceeding rapidly, the superstructure being practically completed. It is hoped



that the construction of the building will be far enough advanced by August 1, 1940, so as to permit the installation of the collections preparatory to the public opening.

As of June 30, 1939, \$5,350,920.07 had been expended by The A. W. Mellon Educational and Charitable Trust upon the construction of the building, which, it is estimated, will cost in excess of \$15,000,000. The recording of such expenditures in the books of account of the National Gallery of Art will be deferred until the completion of the construction of the Gallery.

No appropriations made by Congress for the National Gallery of Art were expended during the fiscal year ended June 30, 1939, and no public or private funds were received or disposed of during the year. Pursuant to instructions, Price, Waterhouse & Co., a nationally known firm of public accountants, has made an examination of the accounting records of the National Gallery of Art, and a copy of the certificate of that firm dated September 8, 1939, follows:

Pursuant to your instructions, we have made an examination of the accounting records of the National Gallery of Art and other documentary evidence, and have obtained information and explanations from its officers.

The books of account reflect the acquisition as of June 24, 1937, of the works of art donated by The A. W. Mellon Educational and Charitable Trust, valued for accounting purposes at \$31,303,162.31. Pursuant to joint resolution of Congress and the trust indenture, The A. W. Mellon Educational and Charitable Trust, at its expense, is proceeding with construction of the National Gallery of Art. The recording of the construction expenditures in the books of account of the National Gallery of Art is being deferred until completion of construction. An endowment fund of \$5,000,000 is expected to be received from The A. W. Mellon Educational and Charitable Trust at about the time of completion of the Gallery.

By an indenture effective June 29, 1939, Mr. Samuel H. Kress and the Samuel H. Kress Foundation donated certain works of art to the National Gallery of Art subject to completion of construction of the Gallery building on or before June 29, 1941. The value for accounting purposes of the works of art so acquired has not yet been determined and no entries in respect of this gift have yet been recorded in the books of account.

Our examination disclosed no other transactions to June 30, 1939, which should be recorded in the books of account.

Our examination did not include inspection of the works of art to which the National Gallery of Art had title at June 30, 1939. We have, however, examined the deeds of trust by the donors which provide that the donors shall be responsible for the custody and shall bear the cost of storage and insurance until delivery of the works of art is made after completion of the Gallery building.

In our opinion, based upon our examination, the books of account, subject to the fact that no entry has been made in respect of the works of art acquired June 29, 1939, fairly present, in accordance with accepted principles of accounting consistently maintained by the Gallery during the year under review, the position of the National Gallery of Art at June 30, 1939.

PAINTINGS AND SCULPTURE CONTAINED IN THE COLLECTION GIVEN TO  
THE NATIONAL GALLERY OF ART BY SAMUEL H. KRESS AND THE SAMUEL  
H. KRESS FOUNDATION

## PAINTINGS

Sandro Botticelli.....	Crucifixion.
Ridolfo Ghirlandaio.....	Portrait of Taddeo Taddei.
Provincial Follower of Piero della Francesca.	Madonna Enthroned.
Ugolino da Siena.....	Madonna and Child.
Giovanni di Niccolo da Pisa	Madonna and Child.
Giambattista Tiepolo.....	Child Moses Trampling Upon the Crown of the Pharaohs.
Antonio Vivarini.....	St. Catherine Knocking Down the Idols.
Pseudo-Boccaccino.....	A Saint.
Do.....	A Saint.
School of Mantegna.....	Triumph of Religion.
Do.....	Triumph of Time.
Do.....	Triumph of Mortality.
Do.....	Triumph of Love.
Do.....	Triumph of Fame.
Do.....	Triumph of Death.
Niccolo di Pietro Gerini....	Four Saints Before a King.
Benedetto Bembo.....	St. John Preaching.
Vittore Carpaccio.....	Prudentia.
Lombard School or Zavataro	Madonna, Child, Saints, and Donor.
Lippo Memmi.....	Madonna and Child.
Moretto da Brescia.....	Madonna, Child, and Saints.
Vittore Carpaccio.....	Temperentia.
Follower of Pietro Lorenzetti	Crucifixion.
Giovanni Paolo Pannini....	Interior of the Pantheon.
Luca di Tomme.....	Crucifixion.
Paolo di Giovanni Fei.....	Calvary.
Sienese School.....	A Saint.
Do.....	A Saint.
Bartolommeo Montagna....	Madonna and Child.
Bernardino Pintoricchio....	Madonna and Child.
Giulio Bugiardini.....	Portrait of a Young Girl.
Domenico Morone or Paren- zano ?.	Adoration of the Wise Men.
Antonio da Saliba.....	Madonna and Child.
Pietro di Domenico da Mon- tepulciano.	Coronation.
School of Orcagna.....	Coronation.
Carlo Crivelli.....	Two Saints.
Jacopo di Cione.....	Madonna, Child, and Saints.
Bartolommeo di Giovanni..	Tribute to Apollo.
Do.....	A King with His Wise Men.
Andrea di Bartolo.....	Presentation at Temple.
Do.....	Birth of the Virgin.
Do.....	Giving of Alms by Gioacchino.
Vincenzo Catena.....	Portrait of a Girl.

## PAINTINGS—continued

Sano di Pietro.....	Crucifixion.
Giovanni Battista Piazzetta..	Sleeping Shepherdess.
Mariotto di Nardo.....	Crucifixion.
Bronzino (Alessandro Allori)	Portrait of a Youth.
Sano di Pietro.....	St. Benedict.
Do.....	St. Augustine.
North Italian or Tomasso da Modena.	St. Jerome in His Study.
Martino di Bartolommeo or Taddeo di Bartolo.	Holy Saint.
Maestro di San Pietro Ovile..	St. Mary Magdalen.
Martino di Bartolommeo....	Crucifixion.
Marco and Sebastiano Ricci..	Ruins and Figures.
Girolamo Genga.....	St. Agostino Clothes the Three Catechumen.
Gualtieri di Giovanni.....	Madonna and Child.
Florentine School.....	Miracle of St. Nicholas.
Bronzino (Alessandro Allori)..	Portrait of a Boy.
Paris Bordone.....	Diana and Nymphs.
Moretto da Brescia.....	St. Jerome Penitent.
Giovanni Maria Crespi (G. M. Crespi).	Cupids with Sleeping Nymphs.
Pietro Longhi.....	The Simulated Faint.
Do.....	Blind Man's Buff.
Fra Bartolommeo and Mari- otto Albertinelli.	Madonna, Child, and Saints.
Rosalba Carriera.....	Portrait of a Boy.
Giambattista Tiepolo.....	The Virtuous One.
Do.....	Woman with Parrot.
Angelo Puccinelli.....	Predella.
Agnolo Gaddi.....	Annunciation with Donor.
Sebastiano Ricci.....	St. Francis of Paolo Resuscitates a Boy.
Do.....	St. Helen Finds the Real Cross.
Francesco Francia.....	Madonna and Child.
Jacopo Tintoretto.....	Aurora.
Matteo di Giovanni or Coz- zarelli.	Madonna and Child Between Two Angels.
Piero di Cosimo or Other....	Madonna, Child, Saints, and Angels.
Rosello di Jacopo Franchi...	Cassone Front.
Francesco Salviati.....	Portrait of a Young Woman.
Pontormo (Jacopo Carrucci)..	Portrait of a Young Man.
Michele Giambono.....	St. Peter.
Giusto de Menabuoi.....	St. Paul and St. Augustine.
Paolo di Giovanni Fei.....	Madonna and Child between Two Angels, St. Francis and St. Ludwig.
Correggio (Antonio Allegri)..	Marriage of St. Catherine.
Bernardo Daddi.....	Flagellation.
Do.....	A Holy Martyr.
Giovanni da Milano.....	St. Anthony Abbot.
Rimini Artist (follower of Giotto).	Crucifixion with Mary and John.
Domenico Feti.....	Banquet of Epulone.
Master of the Rucellai Poly- ptych.	Polyptych.



## PAINTINGS—continued

Alegretto Nuzi.....	Resurrection of Drusiana.
Do.....	St. John and Philosopher Cratone.
Do.....	St. John Converts Azzio and Cugio.
Do.....	St. John Drinks Poison.
Bernardino Licinio.....	Portrait of a Musician.
Bonifazio Veronese.....	Holy Conversation.
Lorenzo Lotto.....	Portrait of a Man.
Filippino Lippi.....	St. Francis in Glory.
Dosso Dossi.....	Portrait of Man with Flag.
Franciabigio.....	Portrait of a Young Man.
Giambattista Tiepolo.....	Apotheosis of a Poet.
Garofalo (Benvenuto Tisi)...	Baptism of Christ.
Vittore Ghislandi.....	Portrait of a Young Man.
Paolo Schiavo.....	Flagellation of Christ.
Ugolino da Siena.....	Christ Blessing.
Guadenzio Ferrari.....	The Manger.
Matteo Balducci.....	Venus and Cupid.
Pietro Rotari.....	Half Figure of Girl Asleep.
Do.....	Half Figure of Girl with Flower in Hair.
Francesco Pesellino.....	Crucifixion and Two Saints.
Giambattista Tiepolo.....	Portrait of a Youth.
Andrea Vanni.....	Adoration of the Magi.
Andrea di Giusto.....	Assumption.
Francesco Guardi.....	Bridge with Three Arches.
Giovanni Battista Moroni...	Portrait of a Gentleman in Adoration before the Madonna.
Francesco del Cossa.....	Madonna, Child, and Angels.
Vittore Carpaccio.....	Holy Family.
Lorenzo Lotto.....	St. Catherine.
Bartolommeo Vivarini.....	Madonna and Child.
Bernardino Fungai.....	The Miracle of the Oxen.
Bernardino Luini.....	Venus.
Follower of Angelico and Benozzo.	Madonna, Child, and Angels.
Dido Master.....	Triumphal Train of a Queen.
Canaletto.....	View of the Ducal Palace.
Neri di Bicci.....	Five Saints.
Spinello Aretino.....	Madonna, Child, Angels, and Saints.
Jacopo Bassano.....	Annunciation to the Shepherds.
Giovanni del Biondo.....	Madonna and Child, St. John the Baptist, and St. Catherine.
Agnolo Gaddi.....	Madonna with Child, Saints, and Angels.
Francesco Guardi.....	Campo San Zanipolo.
Andrea da Firenze.....	Crucifixion.
Giovanni Baronzio.....	Baptism of Christ.
Jacopo Tintoretto.....	The Trinity Courtied by the Angels.
Sebastiano Mainardi.....	Madonna with the Child, St. John, and Three Angels.
Cenni di Francesco.....	Madonna and Child.
Andrea di Giusto.....	Judgment Scene.
Rosalba Carriera.....	Allegory of Painting.
Florentine Master, about 1420.	Cassone Front.

## PAINTINGS—continued

Benedetto Diana.....	Holy Family.
Pietro Lorenzetti.....	Madonna, Child, and Saints.
Domenico Veneziano.....	Stigmatization of St. Francis.
Duccio di Buoninsegna.....	Calling of Peter and Andrew.
Giorgione?.....	Venus and Cupid in Landscape.
Paolo Veneziano.....	Crucifixion.
Marco Basaiti.....	Madonna and Child.
Fra Angelico da Fiesole.....	St. Francis and St. Dominic.
Lorenzo Vecchietta.....	Pieta.
Lorenzo Lotto.....	Maiden's Dream.
Master of the Melzi Madonna.	Madonna and Child between St. Bartholomew and St. John Baptist.
Vittore Carpaccio.....	St. Nicolas.
Do.....	St. Peter Martyr.
Jacopo di Cione.....	Dead Christ with Mary, St. John, and Donor.
Bernardino Luini.....	Madonna and Child.
Giovanni Battista Uti (Biagio di Antonio)	Cassone Front.
Giovanni dal Ponte.....	Triptych.
Pietro Perugino.....	The Annunciation.
Lorenzo Lotto.....	Allegory.
Jacopo Tintoretto.....	Portrait of Young Man in White.
Paolo Veronese.....	The Assumption.
Michelangelo Caravaggio.....	Still Life.
Piero di Cosimo.....	Allegory.
Francesco Ubertini called Bacchiacca.	Allegorical Tondo.
Taddeo di Bartolo.....	Madonna and Child.
Sano di Pietro.....	Listed as The Annunciation (actually Madonna in Adoration with Saints and Angels).
Giovanni Bazzani.....	Mythological Scene.
Federico Baroccio.....	Woman with Book.
Bernardino Zenale.....	Virgin and Saints.
Jacopo del Sellaio.....	Adoration of the Magi.
Cima da Conegliano.....	St. Jerome in the Wilderness.
Antoniazio Romano.....	Crucifixion.
Lorenzo Costa.....	A Saint.
Do.....	A Saint.
Do.....	A Saint.
Do.....	A Saint.
Pseudo-Pier Francesco Fiorentino.	Madonna and Child.
Lattanzio da Rimini.....	Madonna and Child.
Marco Basaiti.....	Madonna and Child.
Cimabue?.....	Capture of Christ in the Garden.
Andrea Mantegna.....	Judith and Her Servant.
Giovanni Battista Uti (Biagio di Antonio).	Portrait of a Boy.
Jacopo Tintoretto.....	Worship of the Golden Calf.
Francesco Guardi.....	Sacred Family.
Giovanni Bellini.....	Portrait of a Man.
Mariotto di Nardo.....	Madonna, Child, and Saints.

## PAINTINGS—continued

Bramantino (Bartolommeo Suardi).	Madonna and Child.
Francesco Salviati.....	Portrait of a Young Man.
Jacopo Tintoretto.....	Nativity.
Filippino Lippi.....	A Saint.
Do.....	A Saint.
Jacopo Tintoretto.....	Apollo and Marsyas.
Guiseppe Bazzani.....	Laughing Man.
Tanzio da Varallo.....	St. Sebastian.
Pontormo (Jacopo Carrucci).	Portrait of a Medici.
Vittore Carpaccio.....	St. Stephen.
Do.....	St. John Baptist.
Francesco Francia.....	Madonna, Child, and St. John.
Vincenzo Catena.....	Portrait of a Man.
Giovanni Boccatis.....	Portrait of a Monk.
Giovanni Battista Moroni..	Portrait of a Man.
Geolamo Bedoli-Mazzola...	Portrait of a Monk.
Cimabue?.....	Last Supper.
Pietro Perugino.....	Pieta.
Bartolommeo di Giovanni..	Epiphany.
Agnolo Gaddi.....	Coronation.
Antonello da Saliba.....	Abraham's Meeting with the Angels.
Giovanni Bellini.....	Portrait of a Man.
Albertino Piazza da Lodi...	Madonna Surrounded by Angels.
Maestro Esiguo.....	Crucifix.
Lippo Vanni.....	Predella.
Vittore Crivelli.....	St. Francis.
Bernardino Fungai.....	A Saint.
Leonardo Scaletti.....	Madonna and Child.
Paolo Veronese.....	Baptism of Christ.
Titian.....	Cupid with Wheel of Fortune.
Alesso Baldovinetti.....	Madonna and Child.
Pietro Perugino.....	Madonna and Child.
Simone Martini.....	Announcing Angel.
Giovanni Bellini.....	St. Jerome Reading.
Carrand or Barberini Master.	The Annunciation.
Ercole Roberti.....	Portrait of Giov. II Bentivoglio.
Do.....	Portrait of Ginevra Bentivoglio.
Domenico Veneziano.....	Madonna and Child.
Neroccio de'Landi.....	Madonna and Child with St. Jerome and St. Mary Magdalen.
Giovanni di Paolo.....	The Annunciation.
Giovanni Bellini.....	Portrait of Condottiere Bartolommeo Colleoni
Masolino da Panicale.....	Annunciation (Angel).
Do.....	Annunciation (Madonna).
Francesco del Cossa.....	St. Liberale.
Do.....	St. Lucy.
Filippino Lippi.....	Tobias and the Angel.
Moretto da Brescia.....	Portrait of Lady in White.
Jacopo Tintoretto.....	Susanna.
Bartolommeo Vivarini.....	Coronation.
Filippino Lippi or Sellaio...	Bust of Christ.
Sodoma (Giov. Ant. Bazzi) ..	Leda.



## PAINTINGS—continued

Correggio (Antonio Allegri)	Portrait of a Young Girl.
Giovanni da Bologna	Coronation.
Antonio Veneziano	St. Paul.
Ambrogio da Predis	Madonna and Child.
Pisan School	Scene from Life of Christ.
Giovanni di Paolo	Polyptych.
Neroccio de' Landi	Naval Battle of Actium.
Francesco di Giorgio	Visit of Cleopatra to Mark Antony.
Fra Filippo Lippi or Fra Diamante.	Two Saints.
Do	Two Saints.
Correggio?	Madonna of the Carnation.
Stefano di Giovanni Sassetta	Madona, Child, and Holy Father.
Pellegrino di Mariano	Triptych.
Jacopo del Casentino	Presentation at the Temple.
Pietro Lorenzetti or Ugolino Lorenzetti.	A Female Saint.
Dosso Dossi	Departure of the Argonauts.
Lippo Memmi	Madonna and Child.
Domenico Morone	Madonna and Ecce Homo.
Lorenzo Costa	St. Paul.
Giovanni Bellini	Portrait of a Young Man.
Gentile da Fabriano	Madonna and Child.
Giotto	Madonna and Child.
Bartolommeo Veneto	Portrait of Maximilian Sforza.
Giorgione and Titian	A Venetian Gentleman.
Titian	A Lady at Mirror.
Fra Angelico da Fiesole	The Entombment.
Nardo di Cione	Madonna and Child with Sts. Peter and John Evangelist.
Giovanni Bellini	The Virgin and Child.
Jacopo Bellini	Profile Portrait of a Boy.
Carlo Crivelli	Madonna and Child.
Benozzo Gozzoli	St. Ursula and Donatrice with Angels.
Andrea Mantegna	Madonna and Child.
Francesco Pesellino	Madonna and Child.
Gentile da Fabriano	Miracle of St. Nicolas of Bari.
Domenico Ghirlandaio	St. Michael.
Do	St. Dominic.
Marco Zoppo	St. Peter.
Paolo Uccello and Assistants	Battle Scene.
Jarvis Master	Triumph of Chastity.
Sano di Pietro	Madonna, Child, and Angels.
Vincenzo Foppa	St. Christopher.
Luca Signorelli	Birth of St. John.
Barnaba da Modena	Madonna, Child, and Five Saints.
Matteo di Giovanni	Judith.
Fra Filippo Lippi	Nativity.
Pietro Perugino	St. Jerome in the Wilderness.
Luca Signorelli	Life of St. Niccolo.
Giovanni di Paolo	Assumption of the Virgin with Two Saints.
Jacopo del Sellaio	St. John in the Wilderness.

## PAINTINGS—continued

Lorenzo Costa.....	Apostles at Death of Virgin.
Do.....	Miracle of the Catafalque.
Do.....	Apostles at Death of the Virgin.
Fra Filippo Lippi or Fra Diamante	Two Saints.
Lorenzo Lotto.....	Nativity.
Giorgione.....	Adoration of the Shepherds.
Fra Filippo Lippi.....	Madonna and Child.
Simone Martini.....	St. John.
Titian.....	Portrait of Giulia di Gonzaga.
Stefano di Giovanni Sassetta.	Meeting of St. Anthony and St. Paul.
Pintoricchio.....	Portrait of a Youth.
Cosimo Rosselli.....	Madonna and Child with Saints.
Fra Filippo Lippi.....	Head of Madonna.
Matteo di Giovanni.....	Madonna, Child, and Saints.
Paolo Uccello?.....	Madonna and Child.
Master of the Louvre Predellas.	Annunciation.
Lorenzo Veneziano.....	Madonna and Child.
Barnaba da Modena.....	Crucifixion.
Master of the Virgil Codex.	Madonna, Child, and Angels.
Amico Aspertini.....	St. Sebastiano.
Francesco di Giorgio.....	Cassone Front.
Sodoma (Giov. Ant. Bazzi).....	Madonna, Child, and St. John.
Francesco Granacci.....	Madonna, Child, and St. Joseph.
Giannicolo di Paolo.....	Crucifixion.
Cariani (Giov. Busi).....	Portrait of a Gentleman.
Gentile da Fabriano.....	Madonna, Child, and Angels.
Giovanni Boccatis.....	Madonna and Child.
Alvise Vivarini.....	St. Jerome.
Follower of Giotto.....	Crucifixion.
Domenico di Michelino.....	Seven Sciences.
Do.....	Seven Virtues.
Bernardino Pintoricchio.....	Madonna and Child.
Francesco di Antonio Banchi.	Madonna and Child.
Pietro Perugino.....	St. Bartholomew.
Benvenuto di Giovanni.....	Christ in the Garden.
Cosimo Rosselli.....	Holy Family and Angels.
Neri di Bicci.....	Life of St. Appollonia.
Niccolo di Pietro Gerini.....	Madonna and Child.
Vincenzo Catena.....	Christ and the Samaritan.
Andrea Vanni.....	St. Clara.
Girolamo del Pacchia.....	Madonna and Child.
Borgognone (Ambrogio Fossano).	Madonna and Child.
Francesco Granacci.....	Cassone Painting.
Alvise Vivarini.....	St. Jerome.
Do.....	St. John Baptist.
Gianpietrino.....	Portrait of a Lady as Magdalen.
Ugolino Lorenzetti.....	The Crucifixion.

## PAINTINGS—continued

L'Ortolano.....	Presentation at the Temple.
Domenico Beccafumi.....	Cassone Front.
Sodoma (Gio. Antonio Bazzi).	St. Sebastian and Saints.
Giovanni Bellini.....	Virgin and Child.
Girolamo di Benvenuto.....	Portrait of a Lady.
Vittore Carpaccio.....	Lady Reading.
Giovanni Bellini.....	Portrait of a Man.
Andrea del Sarto.....	Madonna, Child, and Infant St. John.
Cosimo Tura.....	Portrait of a Man.
Cosimo Rosselli or Ghirlandai.	Madonna and Child.
Giovanni Baronzio.....	Adoration of the Magi.
Luca di Tomme.....	Madonna and Child with Saints and Angels.
Piero di Cosimo.....	The Visitation.
Bernardino Luini.....	The Nativity.
Giovanni Battista Uti (Biagio di Antonio).	Nativity with Saints and Donor.
Bernardo Daddi.....	Madonna and Child with Saints.
Giambattista Tiepolo.....	Timocleia and the Thracian Commander.
Guariento.....	Madonna, Child, and Four Saints.
Vincenzo Foppa.....	Madonna and Child.
Lorenzo di Niccolo.....	Crucifixion with Four Saints.
Giovanni di Paolo.....	Saint Luke
Giacomo Pacchiarotto.....	Madonna and Child.
Piero di Cosimo.....	Nativity with St. John.
Girolamo Romanino.....	Madonna and Child.
Pietro Degli Ingannati.....	Female Saint.
Fra Bartolommeo.....	Creation of Eve.
Sieneſe School (perhaps Niccola di Segna)	St. Margarete.
Girolamo di Santa Croce...	Annunciation.
Fra Bartolommeo and Fra Paolino.	Madonna, Child, and Saints.
Giovanni Antonio Pordenone	St. Christopher.
Franciabigio .....	Madonna and Child.
Garofalo (Benvenuto Tisi) ..	St. Jerome in the Desert.
Paris Bordone.....	Venus at the Forge of Vulcan.
Girolamo da Carpi.....	Assumption of the Virgin.
Alessandro Magnasco.....	Landscape with Figures.
Vincenzo Civerchio.....	St. Peter.
Giovanni Francesco Caroto.	Deposition of Christ.
Pellegrino di Mariano.....	Small Altarpiece.
Pontormo (Jacopo Carrucci)	Holy Family.
Dosso Dossi.....	St. Lucretia.
Alessandro Magnasco.....	Storm at Sea.
Maestro del Bambino Vispo.	Adoration of the Magi.
Girolamo da Treviso.....	Madonna and Child.
Mariotto Albertinelli.....	Madonna and Child.
Giovanni del Biondo.....	Annunciation.



## SCULPTURE

Giovanni Antonio Amadeo..	Marble Angel.
Do.....	Marble Angel.
Do.....	Marble Madonna and Child.
Andrea Sansovino.....	Marble Madonna and Child.
Francesco di Simone Ferrucci	Marble Tondo: Madonna and Child.
Pierino da Vinci.....	Marble Profile of Woman.
Desiderio da Settignano....	Marble Bust of Isotta da Rimini.
Antonio Rossellino.....	Marble Relief: Madonna and Child.
Benedetto da Maiano.....	Marble Relief: Nativity.
Andrea della Robbia.....	Glazed Majolica: St. Peter.
Luca della Robbia.....	Glazed Majolica: Madonna and Child.
Andrea della Robbia.....	Glazed Majolica: Head of Boy.
Do.....	Glazed Majolica: Head of Boy.
Andrea del Verrocchio....	Terra Cotta: Adoration.
Tomassao Fiamberti.....	Marble Relief.
Tino da Camaino.....	Marble Relief: Madonna and Child.
Zuan Zorzi Lascari or other	Marble Relief: Madonna, Child and Saints.
(called Pirgotele).	
Annibale Fontana.....	Terra Cotta: Adoration.

Respectfully submitted.

DAVID K. E. BRUCE, *President.*

Dr. C. G. ABBOT,  
*Secretary, Smithsonian Institution.*

## APPENDIX 3

### REPORT ON THE NATIONAL COLLECTION OF FINE ARTS

SIR: I have the honor to submit the following report on the activities of the National Collection of Fine Arts for the fiscal year ended June 30, 1939:

The gallery of the National Collection was closed for renovation during the last 4 months of the year and will probably be reopened in the autumn of 1939. Tons of weak plaster have been replaced, and the woodwork is being painted to match the light-colored monk's cloth with which the walls are to be covered. This monk's cloth is "air-conditioned" in that it is backed with rubber to prevent the irregular collection of dirt which has been the major fault of loosely woven, light-colored fabrics as wall coverings. The appearance of the gallery will be greatly improved, and the collections will be seen to much better advantage.

#### APPROPRIATIONS

For the administration of the National Collection of Fine Arts by the Smithsonian Institution, including compensation of necessary employees, purchase of books of reference and periodicals, traveling expenses, uniforms for guards, and necessary incidental expenses, \$34,275 was appropriated. This amount was reduced \$750, bringing it to \$33,525, of which \$16,542 was expended for the care and maintenance of the Freer Gallery of Art, a unit of the National Collection of Fine Arts. The balance of \$16,983 was spent for the care and upkeep of the National Collection of Fine Arts, nearly all of this sum being required for the payment of salaries, traveling expenses, books, periodicals, and necessary disbursements for the care of the collections.

#### THE SMITHSONIAN ART COMMISSION

The eighteenth annual meeting of the Smithsonian Art Commission (formerly the National Gallery of Art Commission) was held on December 6, 1938. The members met at 10:30 in the Natural History Building, where, as the advisory committee on the acceptance of works of art which had been submitted during the year, they accepted the following:

Wash drawing on cardboard entitled "The Devil's Tower from Johnstons," by Thomas Moran (1837-1926). Gift of the estate of John Holme Maghee, through Mrs. John P. Marble, Chevy Chase, Md.

A Mourning Pin, by an unknown artist. Gift of Edmund Bury, Philadelphia, Pa.

Statues of J. Q. A. Ward (1830-1910) and Joseph Jefferson (1829-1905), by Charles H. Niehaus (1855-1935). Gift of the sculptor's daughter, Miss Marie J. Niehaus, Grantwood, N. J. "The Driller," by Charles H. Niehaus, was in very bad condition, but the members of the Commission granted permission to have it repaired and exhibited.

Bronze bust of Andrew Furuseth (1854-1938), by Ivan Mestrovic (1883- ). Gift of Charles R. Crane, New York, N. Y.

The members then proceeded to the Smithsonian Building, where the annual meeting was called to order by the chairman, Mr. Borie. The members present were Charles L. Borie, Jr., chairman; Dr. Charles G. Abbot (ex officio), secretary; Herbert Adams, Gifford Beal, John E. Lodge, David E. Finley, Frederick P. Keppel, Paul Manship, George B. McClellan, and Mahonri M. Young. Ruel P. Tolman, Curator of the Division of Graphic Arts in the United States National Museum and Acting Director of the National Collection of Fine Arts, was also present.

The following resolutions on the death of Mr. Edmund C. Tarbell were submitted and adopted:

Whereas the Smithsonian Art Commission has learned of the death, on August 1, 1938, of Edmund C. Tarbell, a member of the Commission since 1924; therefore be it

*Resolved*, That the Commission desires here to record its sorrow at the loss of Mr. Tarbell, who was highly respected and valued alike for his exceptional ability as a painter, for his keen judgment regarding works of art, and for his deep and helpful interest in the affairs of the Commission.

*Resolved*, That these resolutions be entered upon the records of the Commission and that the Secretary be requested to communicate them to the family of Mr. Tarbell.

The resignation of Charles Moore was submitted and accepted with regret. The chairman appointed Dr. Abbot to communicate an expression of the regret of the Commission to Mr. Moore.

The Commission recommended to the Board of Regents the name of Louis Ayres to fill the vacancy caused by the death of Mr. Tarbell, and that of Gilmore D. Clarke to fill the vacancy caused by the resignation of Mr. Moore.

It also recommended to the Board of Regents the reelection of Herbert Adams and Gifford Beal for the succeeding term of 4 years.

The following officers were reelected for the ensuing year: Charles L. Borie, Jr., chairman; Frank Jewett Mather, Jr., vice chairman; and Dr. Charles G. Abbot, secretary.

The following were reelected members of the executive committee for the ensuing year: Herbert Adams, and George B. McClellan (Charles L. Borie, Jr., as chairman of the Commission, and Dr.



Charles G. Abbot, as secretary of the Commission, are ex officio members of the executive committee). Mr. McClellan was elected chairman, and Mr. Clarke was elected to serve in place of Mr. Moore.

Dr. Abbot reported in detail the meetings of the Smithsonian Gallery of Art Commission, and a discussion followed relative to the proposed plans and site for the Smithsonian Gallery of Art.

Mr. Finley made a report on the progress of the National Gallery of Art building and invited the members of the Commission to view the Mellon collection at the Corcoran Gallery of Art during the afternoon.

#### THE CATHERINE WALDEN MYER FUND

Two miniatures were acquired from the fund established through the bequest of the late Catherine Walden Myer, as follows:

Miniature of Mary White, wife of Governor John Willis Ellis of North Carolina, by J. Henry Brown (1818-1891); from Mrs. Sue Bruner Clontz, Salisbury, N. C.

Miniature of Polly Sutton Catlin (1770-1844), mother of George Catlin, by George Catlin (1796-1872); from Miss Marion Lane, Washington, D. C.

#### LOANS ACCEPTED

A mourning miniature by an unknown artist (about 1804) was lent by Mrs. Mary Koolage House, Lansdowne, Pa.

Three family portraits by unknown artists of Elizabeth Ann Kimberly, Capt. Patrick Kavanagh, and Charles Washington Kavanagh and William McK. Kavanagh, were lent by Mrs. Noble Newport Potts, Washington, D. C.

#### LOANS TO OTHER MUSEUMS AND ORGANIZATIONS

Upon the request of the Icelandic Government, the plaster model for the statue of Leifr Eiricsson, by Alexander Stirling Calder, was dismantled by Attilio J. Contini, New York City, and taken by him by truck to E. Gargani & Sons, Brooklyn, N. Y., for the purpose of making a bronze cast to be exhibited at the New York World's Fair. (Returned April 15, 1939, and assembled by Mr. Contini.)

"Sunset, Navarro Ridge, California Coast," by Ralph A. Blake-lock, was lent to the Golden Gate International Exposition for inclusion in the Department of Fine Arts from February 18 to December 2, 1939.

"Cliffs of the Upper Colorado River, Wyoming Territory," by Thomas Moran, was lent to the Carnegie Institute, Pittsburgh, Pa., from March 22 to April 30, 1939. (Returned May 8, 1939.)

"Lower Ausable Pond," by Homer D. Martin, and "September Afternoon," by George Inness, were lent to The Museum of Modern Art Gallery of Washington, D. C., for an exhibition of American paintings, from March 5 to April 2, 1939. (Returned April 3, 1939.)

"Friendly Neighbors," by Alfred C. Howland, was lent to Harvard University, William Hayes Fogg Art Museum, Cambridge, Mass., for an exhibition of New England genre by New England artists, from May 15 to September 1, 1939.

Upon the request of J. V. Herring, of Howard University, the paintings "Portrait of a Lady," by Gilbert Stuart; "Georgia Pines," by George Inness; and "Moonlight," by Albert P. Ryder, were lent to Bennett College, Greensboro, N. C., for an exhibition of American paintings to be shown at the opening of their new library building on April 16, 1939. (Returned May 15, 1939.)

A bronze statute of Lincoln, by Augustus Saint Gaudens, was lent, with the consent of the owners, the estate of Mrs. John Hay, to the New York World's Fair for exhibition in the Illinois Building. A pedestal was also lent.

The Procurement Division of the United States Treasury, through Robert LeFevre, borrowed, with the consent of their owner, William Kemeys, of Garrett Park, Md., the following three pieces of sculpture by Edward Kemeys: "Fighting Panther and Deer"; "Bronze Wolf" (No. 3); and "Bronze Wolf" (No. 4). A plaster statue "Grizzly Bear," by Edward Kemeys, the property of the Smithsonian Institution, and a blue Sevres vase, No. 371 from the Pell collection, with a wooden base, were also selected for use in the State reception suite at Union Station.

#### WITHDRAWALS BY OWNERS

A bronze statue "Negro Mother and Child," by Maurice Glickman, lent in 1934 by the Public Works of Art Project, was withdrawn April 15, 1939, and sent to the New York World's Fair for exhibition.

#### THE HENRY WARD RANGER FUND

Approval of the loan of "Margery and Little Edmund," by Edmund C. Tarbell, was given the Museum of Fine Arts, Boston, Mass., for an exhibition of the work of Frank W. Benson and the late Edmund C. Tarbell, from November 15 through December 15, 1938. The painting had been purchased in 1929 by the Council of the National Academy of Design from the fund provided by the Henry Ward Ranger Bequest and had been assigned to The Grand Rapids Public Library, Grand Rapids, Mich.

## THE NATIONAL COLLECTION OF FINE ARTS REFERENCE LIBRARY

A total of 524 publications were accessioned during the year. A card index of auction prices brought by works of art was begun, which when completed, will save many hours of search now made necessary by the frequent requests for information on the market value of art objects.

## SPECIAL EXHIBITIONS

The following exhibitions were held:

*July and August 1938.*—The Eberstadt collection of 260 naval historical prints, lent by the Naval Historical Foundation, was continued through August.

*September 3 to 26, 1938.*—Architectural exhibition of representative buildings of the post-war period, consisting of 127 photographs assembled by the Committee on Education, American Institute of Architects, lent by the American Federation of Arts.

*October 7 to 30, 1938.*—Special exhibition of 200 prints by graphic artists, Federal Art Project, Works Progress Administration.

*November 8 to 29, 1938.*—Special exhibition of 76 water-color paintings of the flora of the Isthmus of Panama, by Marie Louise Evans, under the patronage of His Excellency, the Minister of Panama, Señor Dr. Don Augusto S. Boyd.

*January 6 to 30, 1939.*—Special exhibition of 173 framed water-color sketches and 7 progressive proofs of wild flowers of various National Parks, by Mary Vaux Walcott.

*February 3 to 27, 1939.*—Special exhibition of 56 oil paintings, 38 drawings, 4 water colors, and 3 pastels, by Joel J. Levitt (1875–1937).

## PUBLICATIONS

TOLMAN, R. P. Report on the National Collection of Fine Arts for the year ended June 30, 1938. Appendix 3, Report of the Secretary of the Smithsonian Institution for the year ended June 30, 1938, pp. 35–40.

LODGE, J. E. Report on the Freer Gallery of Art for the year ended June 30, 1938. Appendix 4, Report of the Secretary of the Smithsonian Institution for the year ended June 30, 1938, pp. 41–45.

Respectfully submitted.

R. P. TOLMAN, *Acting Director.*

Dr. C. G. ABBOT,

*Secretary, Smithsonian Institution.*

## APPENDIX 4

### REPORT ON THE FREER GALLERY OF ART

SIR: I have the honor to submit the nineteenth annual report on the Freer Gallery of Art for the year ended June 30, 1939:

#### THE COLLECTIONS

Additions to the collections by purchase are as follows:

##### BRONZE

- 38.20. Chinese, early Chou dynasty, (1122-947 B. C.). A ceremonial vessel of the type *kuei* (or *chiu* or *tui*). Pale yellow bronze with a thin, scattered malachite and cuprite patination inside and out. Inscription of 11 characters inside. 0.278 by 0.341 over all; base 0.198 by 0.187. (Illustrated.)
- 39.5. Chinese, late Chou dynasty, middle fifth century B. C. A large basin of the type *chien*. White bronze with an even, pale green patination sprinkled with granular encrustations. Inscription of six characters inside. 0.227 by 0.518 over all. (Illustrated.)

##### JADE

- 39.6-  
39.34. Chinese, Shang (Yin) and late Chou dynasties, twelfth to third century B. C. Twenty-nine carved jades. (39.16, 39.29, 39.30 illustrated.)

##### MANUSCRIPT

- 38.19. Arabic (Egypt), fifteenth century. The 18th *juz'* of the *Qur'ān*. The text is written in black *thulth* script with additions in red, five lines to a page, on 48 paper leaves, sewed. Four illuminated head-pieces; illuminated verse-stops and marginal marks. 0.370 by 0.263 (average leaf).

##### PAINTING

- 38.18. Chinese, dated in correspondence with A. D. 1369. Ming dynasty. By Sung K'ò. Bamboo. Ink on paper. Signature and seal. Forty-three other seals *plus* one on the label. Three inscriptions. Makimono: 0.249 by 0.981.
- 39.1. Chinese, dated in correspondence with A. D. 1552. Ming dynasty. By Wên Pi (Chêng-ming), 1470-1567. A river landscape. In ink and transparent color on paper. Nineteen seals on the picture proper; 30 seals on the mount. Title and colophon written and signed by the artist. Makimono: 1.415 by 0.305.
- 39.2. Chinese, Ming dynasty. By Shên Chou, 1427-1509. A river landscape. In ink and transparent color on paper. Inscription with signature and 9 seals on the picture proper; 6 inscriptions and 36 seals on the mount. Makimono: 1.690 by 0.248.





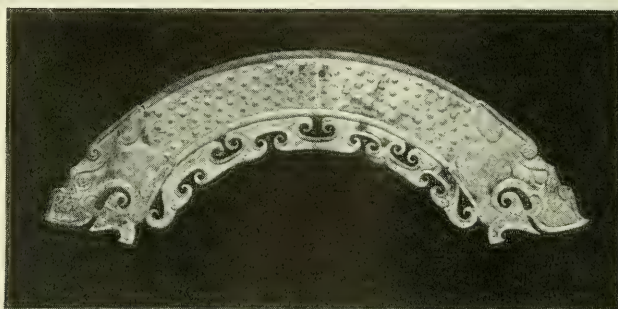
38.20



39.5



39.16



39.29



39.30

- 39.3. Chinese, dated in correspondence with A. D. 1554. Ming dynasty. By Lu Chih, 1495-1576. A river landscape in spring. In ink and transparent color on paper. Signature and 4 seals on the painting; 3 inscriptions and 10 seals on the mount. Makimono: 1.001 by 0.223.
- 39.4. Chinese, sixteenth century, Ming dynasty. By Ch'iu Ying, fl. 1522-1560. A mountain landscape. In ink and color on paper. Inscription with the artist's signature and 14 seals on the painting; 2 labels, 8 inscriptions and 35 seals on the mount. Makimono: 3.067 by 0.254.
- 39.35-
- 39.36. East Indian, fifteenth century. Two illustrations upon leaves taken from a manuscript of the *Mārkaṇḍeya-pūraṇa*. In outline drawing and solid color upon palm leaf. Palm leaves: 0.051 by 0.238; paintings each 0.051 by 0.065.

Curatorial work during the past year has been devoted to the study of the new acquisitions listed above and to other Chinese, Japanese, Arabic, Persian, East Indian, and Armenian manuscripts or art objects, either already in the permanent collection or submitted for purchase. Other Chinese, Japanese, Arabic, Persian, Egyptian, Byzantine, American, and European objects were sent or brought to the Director by their owners requesting information as to identity, provenance, quality, date, inscription, and so on. In all, 1,386 objects and 586 photographs of objects were so submitted, and written or oral reports upon them were made to the institutions or the private owners who requested this service. Written translations of 17 inscriptions in Oriental languages also were made upon request.

Changes in exhibition have involved a total of 71 objects, as follows:

Chinese bronze mirrors.....	12
Chinese bronze vessels.....	6
Chinese gold.....	4
Chinese jade.....	2
Chinese painting.....	32
Chinese silver.....	2
Chinese silver-gilt.....	6
Persian pottery.....	7

#### ATTENDANCE

The Gallery has been open to the public every day from 9 until 4:30 o'clock, with the exception of Mondays, Christmas Day, and New Year's Day.

The total attendance of visitors coming in at the main entrance was 102,813. One hundred twenty-three other visitors on Mondays makes the grand total 102,936. The total attendance for week-days, exclusive of Mondays, was 76,682; Sundays, 26,131. The average week-day attendance was 295; the average Sunday attendance, 523. The highest monthly attendance was reached in April, 14,483; the lowest in January, 5,449.

There were 1,602 visitors to the main office during the year. The purposes of their visits were as follows:

For general information-----	378
To see objects in storage-----	393
Far Eastern paintings-----	92
Tibetan paintings-----	1
Near Eastern paintings and manuscripts-----	15
East Indian paintings and manuscripts-----	9
American paintings-----	61
Whistler prints-----	6
American pottery-----	2
Oriental pottery, jade, bronzes, sculptures-----	149
Syrian, Arabic, and Egyptian glass-----	2
Gold Treasure and Byzantine objects-----	3
<i>Washington Manuscripts</i> -----	53
To read in the library-----	188
To make tracings and sketches from library books-----	2
To see building and installation-----	39
To obtain permission to photograph or sketch-----	4
To examine or purchase photographs-----	364
To submit objects for examination-----	187
To see members of the staff-----	225
To see the exhibition galleries on Mondays-----	51

#### LECTURES AND DOCENT SERVICE

On Wednesday, March 15, 1939, an illustrated lecture upon "Essentials in Chinese Painting" was given by Dr. Osvald Sirén, Curator of Oriental Arts, National Museum, Stockholm. The audience numbered 221.

Upon request, 16 groups, ranging from 8 to 26 persons (total 260) were given instruction in the study room, upon Chinese Arts, or upon new acquisitions. Two groups, of from 6 to 17 persons (total 23) were given instruction in the pottery storage room, and 6 groups, ranging from 9 to 290 persons (total 392) were given docent service in the exhibition galleries.

The Smithsonian Gallery of Art Commission held three of its meetings in the study and staff rooms.

#### PERSONNEL

Miss Eleanor Thompson was married on September 7, 1938, to Capt. James Snedeker, United States Marine Corps.

Edmund O. Mueller, of Fort Atkinson, Wis., was appointed as painter on February 8, 1939.

Changes in the daily watch force were as follows:

C. E. Bowman, retired, July 31, 1938.



C. H. Gardner, transferred to the United States Employees Compensation Commission, as junior audit clerk, on August 1, 1938.

William P. Bennett, appointed to the force, August 24, 1938.

E. A. Altizer, appointed September 2, 1938.

Grace T. Whitney worked intermittently at the Gallery between October 14, 1938, and June 30, 1939, on translations of Persian texts.

Respectfully submitted.

J. E. LODGE, *Director.*

Dr. C. G. ABBOT,

*Secretary, Smithsonian Institution.*

## APPENDIX 5

### REPORT ON THE BUREAU OF AMERICAN ETHNOLOGY

SIR: I have the honor to submit the following report on the field researches, office work, and other operations of the Bureau of American Ethnology during the fiscal year ended June 30, 1939, conducted in accordance with the act of Congress of May 23, 1938, which provides "For continuing ethnological researches among the American Indians and the natives of Hawaii and the excavation and preservation of archeologic remains. . . ."

#### SYSTEMATIC RESEARCHES

M. W. Stirling, Chief, left Washington on December 24 to begin archeological excavations at a large site near the village of Tres Zapotes in southern Veracruz. This work was undertaken in cooperation with the National Geographic Society, which financed the expedition. The permission to conduct the work was obtained earlier in the year from the Mexican Department of Public Education, whose generous cooperation greatly facilitated the work. With Dr. C. W. Weiant as assistant, excavations were begun on January 1 and continued until April 15.

Although detailed results of this first season of work cannot be announced until further study has been made of the material, far-reaching connections are indicated which require careful study of the Maya, Zapotec, Huastec, and Teotihuacan areas. Nine major stone monuments were excavated at the site, including the famous "Cabesa Colosal," and a very large collection of ceramics and figurines was obtained. The most interesting discovery was a stone monument inscribed with an initial-series date. This is in a style closely related to that on the Tuxtla statuette and apparently records a late Baktun 7 date.

At the conclusion of the work the collections were brought to Mexico City where a division was effected with the Mexican Government. A large carved stone box and the dated monument were successfully transported to the National Museum in Mexico City.

The greater part of the year was devoted by Dr. John R. Swanton, ethnologist, to work connected with the researches of the United States De Soto Expedition Commission. During most of October and the first half of November 1938, he was in the field in the interest of that

Commission. Visits were made by automobile to points in North and South Carolina and southern Georgia, and a great deal of time was spent in researches in Florida, where he was assisted materially by Dr. Herman Gunter, the State geologist, and J. Clarence Simpson. On leaving Florida, Dr. Swanton visited Dr. Walter B. Jones, member of the Commission from Alabama, at Tuscaloosa, and then went to Aberdeen, Miss., where he was met by Col. John R. Fordyce, the Commissioner from Arkansas. In company with Colonel Fordyce and Dr. W. A. Evans, of Aberdeen, he visited several points in northern Mississippi. Colonel Fordyce then drove him to Helena, Ark., where 2 days were spent in the examination of sites along Crowley's Ridge and on White River. Afterward excursions were made to the Menard Mounds near Little Rock and points along the Little Missouri River. On October 26 Dr. Swanton and Colonel Fordyce joined Miss Caroline Dormon, the Louisiana member of the Commission, and her sister, at Jonesville, La., and spent 2 days on the Ouachita and Tensas Rivers in launches kindly furnished by the Mississippi River Commission and accompanied by some of the Commission's officials. Later Dr. Swanton visited Baton Rouge to confer with members of the geological staff of the Louisiana State University, and with James A. Ford, the archeologist engaged in research work in that State, returning from there to Little Rock and thence to Washington.

The remainder of the calendar year 1938 was devoted to the completion of the report of the Commission, and during the first months of 1939 Dr. Swanton was engaged in reading proof for this report, which appeared in May as House Document No. 71 of the Seventy-sixth Congress. It covers 400 pages and includes 11 maps.

On May 30, by special invitation, Dr. Swanton attended the unveiling of a marker at Shaw's Point, near Bradenton, Fla., commemorative of the landing of De Soto, and during this trip he spoke to audiences at Rollins College, Winter Park, on the Indians of Florida and the work of the De Soto Commission, and before the Kiwanis Club at Bradenton and the Jacksonville Historical Society at Jacksonville on the latter subject.

On December 29, 1938, Dr. Swanton delivered the retiring address as president of section H of the American Association for the Advancement of Science.

The start of the fiscal year found Dr. John P. Harrington, ethnologist, engaged in a study of the northern provenience of the Navaho. This tribe, the largest single-dialect Indian population in the United States, numbering some 50,000 souls, centers its present habitat in eastern Arizona and western New Mexico and speaks an aberrant form of Western Apache. It is patent that Western Apache, and also

Eastern Apache (represented by Kiowa Apache, Jicarilla Apache, and Lipan) are tongues of northern origin, coming from beyond the present northern boundary of the United States, the language-bearing ancestors of these so-called Navaho and Apache peoples having migrated from the north. This migration was far back of the range of history, and the reason for accepting this migration is found in the existence of the surprisingly closely related Athapascan languages occupying all the interior of Alaska and western Canada, a patch near the mouth of the Columbia, and another taking in much of the southern Oregon and northern California coast region.

The study of the northern origin of the Navaho consisted of the assembling of documentation from historical and ethnological sources, interviewing of Indians, and discussions with archeologists and ethnologists engaged in Siberian, Alaskan, Great Basin, High Plains, and Navaho region investigations.

The nearest linguistic sisters of the Navaho language in the north are the Carrier and closely related Chilcotin of the southernmost part of the Northern Interior Plateau mentioned above, and east of them the Sarcee, in the Rockies and the plains just east of the Rockies.

The Smithsonian Institution having come into possession of an unprinted source giving a first-hand account of the Sacramento Valley Indians of California in 1850, including two vocabularies of native Indian languages, from the pen of Prince Paul, educated German traveler and friend of Sutter, the founder of Sacramento, Calif., Dr. Harrington left in May to check this new and important material with native informants. The source consisted of an account of the natives of the "Hok" farm, belonging to Sutter. Dr. Harrington discovered the old Indian rancheria mound called "Hok" on the west edge of the Feather River 7 miles south of Yuba City.

July 1 found Dr. Frank H. H. Roberts, Jr., archeologist, in camp at the Lindenmeier site, north of Fort Collins, in northern Colorado, continuing his excavations in search of additional information on Folsom man, the aboriginal nomad who hunted bison, mammoth, and the American camel on the western plains during the closing stages of the glacial period. The work was carried on until the end of September when digging was stopped for the season. During the course of the summer's investigations 3,500 square feet of the original surface of occupation was uncovered. The overburden ranged from 3 to 8 feet in depth so that a considerable quantity of earth had to be removed before the stratum containing the desired archeological record was reached. Included in the layer were various concentrations of cut and split animal bones, most of them from the extinct *Bison taylori*, several hearths, places where the stone chippers had made their tools from different kinds of material present in the vicinity, and an assort-



ment of implements. The collection of specimens of the people's handicraft obtained from the season's excavations comprises, in addition to typically fluted points and a series of tools similar to those found in previous years, several new types of stone knives and scrapers and a number of bone fragments bearing portions of simple, incised, geometric decorations. This material serves to broaden the knowledge on the material culture complex characteristic of this group of early American peoples. The digging also produced important evidence on the relation between the occupation level and certain geologic deposits and helped confirm the correlation of the site with definite features dating from the late glacial horizon in that general area.

After the termination of the work at the Lindenmeier site, Dr. Roberts visited places in Nebraska, Wyoming, and Saskatchewan, Canada, where local collectors have found objects attributable to the Folsom or some other, presumably associated, complex. The sites in Nebraska are in the southwestern corner of the State in Chase and Dundy Counties. The locations inspected in Wyoming are in the northeastern part of the State in the vicinity of Sundance. The Saskatchewan sites are near Mortlach and are of interest because they extend the range of this type of material well toward the north along the postulated route of migration of peoples coming from Asia into the New World. From Mortlach, Dr. Roberts returned to Washington and resumed his office duties on November 1.

During the winter months galley and page proofs were read and corrected for the report, Archeological Remains in the Whitewater District, Eastern Arizona, Part I, House Types, which appeared as Bulletin 121 of the Bureau of American Ethnology. Manuscript for the second part of this report, describing the artifacts and burials associated with the house remains, was revised, completed, and transmitted to the editor for publication in the bulletin series. An article, The Folsom Problem in American Archeology, which appeared in the book *Early Man*, as depicted by leading authorities at the International Symposium at the Academy of Natural Sciences, Philadelphia, March 1937, was revised, augmented with new information and a series of illustrations, and otherwise made suitable for use in the appendix to the Annual Report of the Board of Regents of the Smithsonian Institution for 1938. In addition several short papers on archeological subjects were written for various anthropological journals. Information on Old World archeology was furnished for a radio broadcast on the subject *Pushing Back History*, and this and several other scripts for "The World is Yours" program were read and checked for errors.

In March the Honorable Cordell Hull, Secretary of State, appointed Dr. Roberts to represent the United States on the International Commission for Historic Monuments.

On June 9, 1939, Dr. Roberts left Washington for Colorado, where he resumed excavations at the Lindenmeier site. By the end of the fiscal year he had opened up another portion of the site and was obtaining further data on the Folsom problem.

Dr. Julian H. Steward, anthropologist, spent the months of July and August 1938 in continuing an archeological and ethnological reconnaissance in western South America which was begun during the preceding fiscal year. During this period several Indian villages of the highlands were visited, and a number of archeological sites were examined in both the highland and coastal regions. These researches were undertaken as a preliminary to the editing of the projected Handbook of South American Indians, and on his return to Washington Dr. Steward began preparation of the final plans for the Handbook. These plans were completed during the remainder of the fiscal year, and the project has now been initiated, various contributors having been invited to participate.

Scientific papers prepared by Dr. Steward during the past year are: *Anthropological Reconnaissance of Southern Utah*, for a Bureau of American Ethnology Bulletin; *Anthropological Reconnaissance in South America*, for *Explorations and Field-Work of the Smithsonian Institution in 1938*; *Some Observations on Shoshonean Distributions*, for the *American Anthropologist*; *The Economic Basis of Changes in the Shoshonean Indian Culture*, for the *Scientific Monthly*; *Notes on Hillers' Photographs of the Paiute and Ute Indians taken on the Powell Expedition of 1873*, for the *Smithsonian Miscellaneous Collections*.

Henry B. Collins, Jr., was appointed ethnologist in the Bureau, effective February 1, 1939, by transfer from the Division of Ethnology, United States National Museum. From February 1 to the end of the fiscal year Mr. Collins spent the greater part of his time working over the large and varied collection of artifacts, numbering several thousand specimens, which he excavated in 1936 at Cape Prince of Wales and other prehistoric Eskimo sites in the immediate vicinity of Bering Strait. A statement of the activities of Mr. Collins during the preceding part of the fiscal year is included in the report of the Department of Anthropology of the United States National Museum.

Dr. William N. Fenton, ethnologist, joined the staff of the Bureau of American Ethnology on February 6, 1939, coming to the Bureau from St. Lawrence University. He will continue ethnological

studies among the Iroquois groups in New York and Canada with the aim of cleaning up some of the ethnological problems in the northeastern area that remain from the research of previous students. The Rosenwald Fund of Chicago financed a field trip to the Senecas at Coldspring on the Allegany Reservation in southwestern New York during the interim that followed the end of the first semester at the University and preceded removal to Washington. Dr. Fenton wrote up his field notes on the Seneca Midwinter Festival as a supplement to notes taken in 1934, as soon as he was established at the Bureau. In April and May, Dr. Fenton wrote a monograph on Iroquois Suicide from cases collected during 1935, as a member of the United States Indian Field Service, and parallel cases that occur in the earlier ethnological and historical sources on the Iroquois. He submitted the manuscript for publication in June before leaving for the field. Another manuscript, *Tonawanda Longhouse Ceremonies: Ninety Years After Lewis Henry Morgan*, written in 1936 and recently rewritten, was submitted for publication at the same time.

#### SPECIAL RESEARCHES

Miss Frances Densmore, a collaborator of the Bureau, in continuation of her study of Indian music, submitted two manuscripts entitled "Choctaw War and Dance Songs" and "Choctaw and Seminole Songs," with phonograph records and transcriptions of 31 Choctaw and 9 Seminole songs. The Choctaw songs were recorded near Philadelphia, Miss., in January 1933, and the Seminole songs were recorded at Brighton, Fla., in February of the same year. Transcriptions and phonograph records of two performances on a Choctaw flute were also submitted. These flutes were played by medicine men during ball games to bring success to one group of players and confuse their opponents. Robert Henry, who recorded the flute playing, is a leading medicine man at the ball games. The 66 Choctaw songs, now in possession of the Bureau, were listed according to their catalog numbers. Fourteen manuscripts on the music of the Winnebago, previously submitted, were combined in one manuscript and retyped preparatory to publication, the retyped material comprising about 300 pages. The 205 Winnebago songs were arranged in final order, and listed according to serial and catalog numbers. The galley and page proof, also the music proof, of *Nootka and Quileute Music* were read during the year.

During the fiscal year ended June 30, 1939, John G. Carter, a collaborator of the Bureau, devoted considerable time to the ethnographic and Indian sign-language material contained in the manu-

scripts of the late Maj. Gen. Hugh L. Scott, United States Army. These manuscripts, together with other material, were donated to the Bureau by the widow of General Scott. The material donated consisted of newspaper clippings, pamphlets and other printed matter, photographs, and manuscript.

This material was examined, read, and classified. The photographs were turned over to their proper custodian in the Bureau for filing and record. The pamphlets and other printed matter were disposed of in like manner. The manuscript was read and classified in separate filing jackets. Many historical references in these manuscripts were checked for accuracy.

An extensive research was made into the writings of most of the early discoverers and explorers of the North American continent, beginning with the Norsemen, in order to determine the extent to which and the localities in which the sign language was used by the North American Indians. It was ascertained, as far as the records which have been examined to date reveal, that the sign language was confined to the buffalo-hunting tribes of the plains west of the Mississippi River, and to tribes adjacent to the plains who made seasonal hunts into the buffalo country. This confirms the statements made by General Scott in his manuscripts.

#### EDITORIAL WORK AND PUBLICATIONS

The editing of the publications of the Bureau was continued through the year by Stanley Searles, editor.

#### BULLETINS ISSUED DURING THE YEAR

118. An Archaeological Survey of the Norris Basin in Eastern Tennessee, by William S. Webb.

119. Anthropological Papers, Nos. 1-6. No. 1, A Preliminary Report on Archeological Explorations at Macon, Ga., by A. R. Kelly. No. 2, The Northern Arapaho Flat Pipe and the Ceremony of Covering the Pipe, by John G. Carter. No. 3, The Caribs of Dominica, by Douglas Taylor. No. 4, What Happened to Green Bear Who Was Blessed With a Sacred Pack, by Truman Michelson. No. 5, Lemhi Shoshoni Physical Therapy, by Julian H. Steward. No. 6, Panatübiñi', an Owens Valley Paiute, by Julian H. Steward.

120. Basin-Plateau Aboriginal Sociopolitical Groups, by Julian H. Steward.

121. Archeological Remains in the Whitewater District, Eastern Arizona. Part I, House Types, by Frank H. H. Roberts, Jr.

122. An Archaeological Survey of Wheeler Basin on the Tennessee River in Northern Alabama, by William S. Webb.

123. Anthropological Papers, Nos. 7-12. No. 7, Archeological Investigations in the Corozal District of British Honduras, by Thomas and Mary Gann. No. 8, Linguistic Classification of Cree and Montagnais-Naskapi Dialects, by Truman Michelson. No. 9, Sedelmayr's Relacion of 1746, translated and edited by



Ronald L. Ives. No. 10, Notes on the Creek Indians, by J. N. B. Hewitt, edited by John R. Swanton. No. 11, The Yaruros of the Capanaparo River, Venezuela, by Vincenzo Petruccio. No. 12, Archeology of Arauquin, by Vincenzo Petruccio.

## IN PRESS

101. War Ceremony and Peace Ceremony of the Osage Indians, by Francis La Flesche.

124. Nootka and Quileute Music, by Frances Densmore.

125. Ethnography of the Fox Indians, by William Jones, edited by Margaret Welpley Fisher.

The Index to Schoolcraft's Indian Tribes has been completed.

Publications distributed totaled 19,527.

## LIBRARY

The library continued under the direction of Miss Miriam B. Ketchum, librarian. Accessions during the year totaled 223.

The exchange list has been completely revised and brought up to date, and seven new exchange sets have been added.

The rare book section was finished early in the fiscal year, and the rarest items and many others of importance have been shelved in it. More than half of these books have been recataloged and classified and permanently labeled and shelved.

All the publications of North American societies and institutions have been sorted and all matter not in the field of the Bureau discarded as far as possible.

The librarian attended the meetings of the Inter-American Bibliographical and Historical Society at Washington, D. C., in February, and the Special Libraries Association at Baltimore in May.

The usual routine work of accessioning and cataloging new material and entering new periodicals received has been kept up to date.

## ILLUSTRATIONS

Following is a summary of work accomplished by E. G. Cassedy, illustrator:

Topographic surveying.....	1
Plates prepared.....	94
Line drawings.....	114
Photographs retouched.....	44
Lettering jobs.....	126
Graphs.....	12
Maps.....	18
Mechanical drawings.....	2
Engrossing jobs.....	1
Total.....	412

## COLLECTIONS

Accession  
No.

- 148,708. Potsherds, figurine fragments, and other artifacts from various sites in Mexico, collected in 1938 by M. W. Stirling for the Bureau. (51 specimens.)
- 152,153. Male skeleton from deep trench west of Mound A, Shiloh National Monument, Tenn., and a miscellaneous archeological collection, obtained in the course of excavations conducted by F. H. H. Roberts, Jr., during the winter of 1933-34 in cooperation with the Civil Works Administration.

## MISCELLANEOUS

During the course of the year information was furnished by members of the Bureau staff in reply to numerous inquiries concerning the North American Indians, both past and present, and the Mexican peoples of the prehistoric and early historic periods. Various specimens sent to the Bureau were identified and data on them furnished for their owners.

*Personnel.*—Dr. Truman Michelson, ethnologist, died July 26, 1938. On February 1, 1939, Henry B. Collins, Jr., was appointed by transfer from the United States National Museum to fill the vacancy caused by the death of Dr. Michelson. Dr. William N. Fenton was appointed as ethnologist on February 6, 1939. H. B. Chappell resigned as clerk in the library of the Bureau on October 4, 1938, and Walter B. Greenwood was appointed on November 1, 1938, to fill this vacancy. Stanley Searles, editor, retired on June 30, 1939.

Respectfully submitted.

M. W. STIRLING, *Chief.*

Dr. C. G. ABBOT,

*Secretary, Smithsonian Institution.*

## APPENDIX 6

### REPORT ON THE INTERNATIONAL EXCHANGE SERVICE

SIR: I have the honor to submit the following report on the activities of the International Exchange Service during the fiscal year ended June 30, 1939:

The appropriation granted by Congress for that year was \$44,600, an increase over 1938 of \$340. The collections from repayments were \$3,684.03, making the total available resources \$48,284.03.

The number of packages passing through the service was 714,877, a decrease of 4,244. The weight was 719,694 pounds, an increase of 63,575 pounds.

The number and weight of packages sent and received through the service is given below:

	Packages		Weight	
	Sent	Received	Sent	Received
			<i>Pounds</i>	<i>Pounds</i>
United States parliamentary documents sent abroad.....	311, 120		121, 463	
Publications received in return for parliamentary documents.....		10, 132		32, 796
United States departmental documents sent abroad.....	137, 303		138, 606	
Publications received in return for departmental documents.....		11, 185		35, 761
Miscellaneous scientific and literary publications sent abroad.....	192, 129		273, 128	
Miscellaneous scientific and literary publications received from abroad for distribution in the United States.....		53, 008		117, 940
Total.....	640, 552	74, 325	533, 197	186, 497
Grand total.....	714,877		719,694	

There were shipped abroad 3,023 boxes, an increase of 384 over the preceding year. Of these boxes, 623 were for depositories of full sets of United States governmental documents, and the remainder were for distribution to miscellaneous establishments and individuals.

In some instances it is more advantageous or economical to send packages by mail, paying the postage, than to forward them in boxes by freight to exchange agencies for distribution. During the year there were transmitted in this manner 90,355 packages, a decrease from the last 12 months of 21,120. In addition to transmitting by mail packages on which it is necessary to pay postage, a large number are sent directly to their destinations under Government frank, the franking privilege between the United States and certain foreign countries having been arranged by the United States postal authorities and those of the respective countries. A list of the coun-

tries with which this privilege is in effect is as follows: Canada, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Mexico, Newfoundland (including Labrador), Nicaragua, Panama, Paraguay, Peru, Salvador, Uruguay, and Venezuela.

Shipments to Spain are still suspended. However, efforts are being made through diplomatic channels to resume exchange relations with that country.

Last year mention was made that packages for the National Library of Peiping, the Engineering Reference Library, Nanking, and the Library Association of China were being forwarded to the temporary address of those organizations in Hong Kong, in accordance with the request of Dr. T. L. Yuan who is officially connected therewith. Up to June 30 there were transmitted to those libraries 251 boxes weighing 54,800 pounds and containing more than 36,000 packages of publications presented by individuals and establishments throughout the United States. In acknowledging several large consignments, Dr. Yuan writes as follows:

May I take this opportunity of expressing to you once more our sincere appreciation and grateful thanks for the most efficient manner in which you have assisted China in the great task of rebuilding our intellectual edifice.

Arm in arm with resistance, the Chinese people are carrying out an extensive program of reconstruction, particularly in the Southwest. We have taken special steps to see that the publications are placed in centers where they will be used to the best advantage. You may be sure of the special care and thought which Chinese libraries will give in preserving them and in making them available to the largest number of interested readers.

Just before the close of the year Lingnan University Library, Canton, informed the Institution that it had moved to Hong Kong and requested that publications for that library be sent in care of the Fung Ping Shan Library, Bonham Road, Hong Kong.

Packages for all addresses in China other than those referred to above are forwarded to the Chinese Bureau of International Exchange in Chungking.

The chart (fig. 1) shows the relative weight of packages transmitted through the International Exchange Service between the years 1850, when the service was inaugurated, and 1939, divided into periods of 5 years. The decrease in the weight for the 1915 to 1919 period was due to the disturbance of international relations incident to the World War.

#### FOREIGN DEPOSITORIES OF GOVERNMENTAL DOCUMENTS

There are now transmitted through the service to foreign depositories 61 full sets of United States official documents and 47 partial



sets—108 in all, a decrease of 3 sets. The partial sets for the city of Glasgow, Assam, and Central Provinces were discontinued, and the partial set for Finland was increased to a full set.

At the request of the Danish Government the depository in that country was changed from the Royal Library to the Royal Danish Academy of Sciences in Copenhagen.

The German Government depository was changed from the Ministry of the Interior to the Ministry of Science, Instruction, and Public Education.

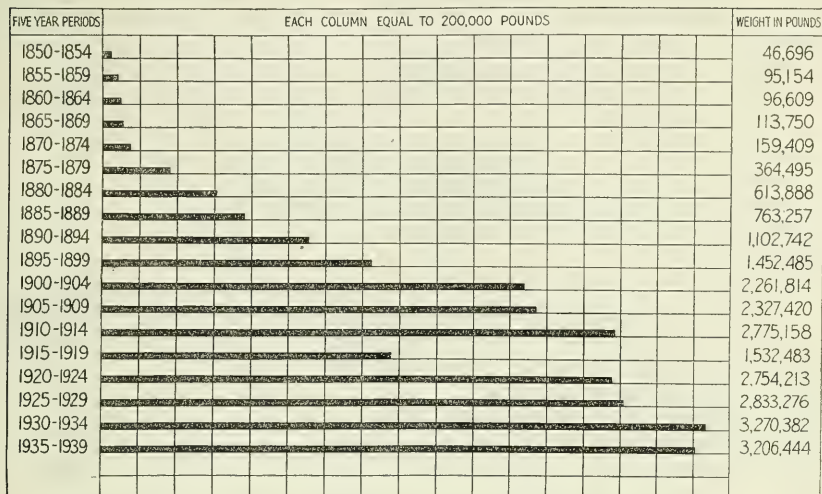


FIGURE 1.—Relative weight of packages transmitted through the International Exchange Service between the years 1850 and 1939, divided into periods of 5 years each.

#### DEPOSITORIES OF FULL SETS

**ARGENTINA:** Ministerio de Relaciones Exteriores, Buenos Aires.

**BUENOS AIRES:** Biblioteca de la Universidad Nacional de La Plata, La Plata. (Depository of the Province of Buenos Aires.)

**AUSTRALIA:** Commonwealth Parliament and National Library, Canberra.

**NEW SOUTH WALES:** Public Library of New South Wales, Sydney.

**QUEENSLAND:** Parliamentary Library, Brisbane.

**SOUTH AUSTRALIA:** Parliamentary Library, Adelaide.

**TASMANIA:** Parliamentary Library, Hobart.

**VICTORIA:** Public Library of Victoria, Melbourne.

**WESTERN AUSTRALIA:** Public Library of Western Australia, Perth.

**BELGIUM:** Bibliothèque Royale, Bruxelles.

**BRAZIL:** Bibliotheca Nacional, Rio de Janeiro.

**CANADA:** Library of Parliament, Ottawa.

**MANITOBA:** Provincial Library, Winnipeg.

**ONTARIO:** Legislative Library, Toronto.

**QUEBEC:** Library of the Legislature of the Province of Quebec.

**CHILE:** Biblioteca Nacional, Santiago.

- CHINA: Bureau of International Exchange, Ministry of Education, Chungking.
- COLOMBIA: Biblioteca Nacional, Bogotá.
- COSTA RICA: Oficina de Depósito y Canje Internacional de Publicaciones, San José.
- CUBA: Secretaría de Estado, Dirección de Relaciones Culturales, Habana.
- CZECHOSLOVAKIA: Bibliothéque de l'Assemblée Nationale, Prague. Shipments temporarily suspended.
- DENMARK: Kongelige Danske Videnskabernes Selskab, Copenhagen.
- EGYPT: Bureau des Publications, Ministère des Finances, Cairo.
- ESTONIA: Riigiraamatukogu (State Library), Tallinn.
- FINLAND: Parliamentary Library, Helsingfors.
- FRANCE: Bibliothèque Nationale, Paris.
- GERMANY: Reichstauschstelle im Reichsministerium für Wissenschaft, Erziehung und Volksbildung, Berlin, N. W. 7.
- AUSTRIA: National-Bibliothek, Wien, I.
- BADEN: Universitäts-Bibliothek, Freiburg. (Depository of the State of Baden.)
- BAVARIA: Bayerische Staatsbibliothek, München.
- PRUSSIA: Preussische Staatsbibliothek, Berlin, N. W. 7.
- SAXONY: Sächsische Landesbibliothek, Dresden—N. 6.
- WURTEMBERG: Landesbibliothek, Stuttgart.
- GREAT BRITAIN:
- ENGLAND: British Museum, London.
- LONDON: London School of Economics and Political Science. (Depository of the London County Council.)
- HUNGARY: Library, Hungarian House of Delegates, Budapest.
- INDIA: Imperial Library, Calcutta.
- IRELAND: National Library of Ireland, Dublin.
- ITALY: Ministero dell'Educazione Nazionale, Rome.
- JAPAN: Imperial Library of Japan, Tokyo.
- LATVIA: Bibliothèque d'État, Riga.
- LEAGUE OF NATIONS: Library of the League of Nations, Geneva, Switzerland.
- MEXICO: Departamento Autónomo de Prensa y Publicidad, Mexico, D. F.
- NETHERLANDS: Royal Library, The Hague.
- NEW ZEALAND: General Assembly Library, Wellington.
- NORTHERN IRELAND: H. M. Stationery Office, Belfast.
- NORWAY: Universitets-Bibliothek, Oslo. (Depository of the Government of Norway.)
- PERU: Sección de Propaganda y Publicaciones, Ministerio de Relaciones Exteriores, Lima.
- POLAND: Bibliothèque Nationale, Warsaw.
- PORTUGAL: Bibliotheca Nacional, Lisbon.
- RUMANIA: Academia Română, Bucharest.
- SPAIN: Servicio de Cambio Internacional de Publicaciones, Paseo de Recoletos 20, Madrid. Shipments suspended since August 1936.
- SWEDEN: Kungliga Biblioteket, Stockholm.
- SWITZERLAND: Bibliothèque Centrale Fédérale, Berne.
- TURKEY: Department of Printing and Engraving, Ministry of Education, Istanbul.
- UNION OF SOUTH AFRICA: State Library, Pretoria, Transvaal.
- UNION OF SOVIET SOCIALIST REPUBLICS: All-Union Lenin Library, Moscow 115.
- UKRAINE: All-Ukrainian Association for Cultural Relations with Foreign Countries, Kiev.

URUGUAY: Oficina de Canje Internacional de Publicaciones, Montevideo.

VENEZUELA: Biblioteca Nacional, Caracas.

YUGOSLAVIA: Ministère de l'Education, Belgrade.

## DEPOSITORIES OF PARTIAL SETS

AFGHANISTAN: Ministry of Foreign Affairs, Publications Department, Kabul.

BOLIVIA: Biblioteca del H. Congreso Nacional, La Paz.

BRAZIL:

MINAS GERAES: Directoria Geral de Estatistica em Minas, Bello Horizonte.

RIO DE JANEIRO: Bibliotheca da Assembleia Legislativa do Estado, Nictheroy.

BRITISH GUIANA: Government Secretary's Office, Georgetown, Demerara.

BULGARIA: Ministère des Affaires Étrangères, Sofia.

CANADA:

ALBERTA: Provincial Library, Edmonton.

BRITISH COLUMBIA: Provincial Library, Victoria.

NEW BRUNSWICK: Legislative Library, Fredericton.

NOVA SCOTIA: Provincial Secretary of Nova Scotia, Halifax.

PRINCE EDWARD ISLAND: Legislative Library, Charlottetown.

SASKATCHEWAN: Legislative Library, Regina.

CEYLON: Chief Secretary's Office (Record Department of the Library), Colombo.

CHINA: National Library of Peiping, % Fung Ping Shan Chinese Library, Hong Kong.

DANZIG: Stadtbibliothek, Danzig.

DOMINICAN REPUBLIC: Biblioteca del Senado, Ciudad Trujillo.

ECUADOR: Biblioteca Nacional, Quito.

GERMANY:

BREMEN: Staatsbibliothek.

HAMBURG: Staats-und Universitäts-Bibliothek.

HESSE: Universitäts-Bibliothek, Giessen.

LÜBECK: President of the Senate.

THURINGIA: Rothenberg-Bibliothek, Landesuniversität, Jena.

VIENNA: Magistrat der Stadt Wien, Abteilung 47 Statistik, Wien IV.

GREECE: Library of Parliament, Athens.

GUATEMALA: Biblioteca Nacional, Guatemala.

HAITI: Secrétaire d'État des Relations Extérieures, Port-au-Prince.

HONDURAS: Biblioteca y Archivo Nacionales, Tegucigalpa.

ICELAND: National Library, Reykjavik.

INDIA:

BENGAL: Secretary, Bengal Legislative Council Department, Council House, Calcutta.

BIHAR AND ORISSA: Revenue Department, Patna.

BOMBAY: Undersecretary to the Government of Bombay, General Department, Bombay.

BURMA: Secretary to the Government of Burma, Education Department, Rangoon.

MADRAS: Chief Secretary to the Government of Madras, Public Department, Madras.

PUNJAB: Chief Secretary to the Government of the Punjab, Lahore.

UNITED PROVINCES OF AGRA AND OUDH: University of Allahabad, Allahabad.

JAMAICA: Colonial Secretary, Kingston.

LIBERIA: Department of State, Monrovia.

LITHUANIA: Ministère des Affaires Étrangères, Kaunas (Kovno).

MALTA: Minister for the Treasury, Valletta.

NEWFOUNDLAND: Department of Home Affairs, St. John's.

NICARAGUA: Superintendente de Archivos Nacionales, Managua.

PANAMA: Secretaría de Relaciones Exteriores, Panama.

PARAGUAY: Secretario de la Presidencia de la República, Asunción.

SALVADOR: Ministerio de Relaciones Exteriores, San Salvador.

STRAITS SETTLEMENTS: Colonial Secretary, Singapore.

THAILAND: Department of Foreign Affairs, Bangkok.

VATICAN CITY: Biblioteca Apostolica Vaticana, Vatican City, Italy.

#### INTERPARLIAMENTARY EXCHANGE OF THE OFFICIAL JOURNAL

The number of copies of the Congressional Record and the Federal Register sent to foreign depositories has been reduced to 103. The Records sent to Bolivia and the Dominican Republic were discontinued, and there was added to the list the Bibliotheek van de Tweede Kamer der Staten-Generaal, The Hague, Netherlands.

#### DEPOSITORIES OF CONGRESSIONAL RECORD

ALBANIA: Ministrija Mbretnore e Punëvetë Jashtme, Tirana.

ARGENTINA:

Biblioteca del Congreso Nacional, Buenos Aires.

Cámara de Diputados, Oficina de Información Parlamentaria, Buenos Aires.

Boletín Oficial de la República Argentina, Ministerio de Justicia e Instrucción Pública, Buenos Aires.

AUSTRALIA:

Library of the Commonwealth Parliament, Canberra.

NEW SOUTH WALES: Library of Parliament of New South Wales, Sydney.

QUEENSLAND: Chief Secretary's Office, Brisbane.

WESTERN AUSTRALIA: Library of Parliament of Western Australia, Perth.

BELGIUM: Bibliothèque de la Chambre des Représentants, Bruxelles.

BRAZIL:

Bibliotheca do Congresso Nacional, Rio de Janeiro.

AMAZONAS: Archivo, Bibliotheca e Imprensa Publica, Manáos.

BAHIA: Governador do Estado da Bahia, São Salvador.

ESPIRITO SANTO: Presidencia do Estado do Espirito Santo, Victoria.

RIO GRANDE DO SUL: "A Federação," Porto Alegre.

SERGIPE: Bibliotheca Publica do Estado de Sergipe, Aracajú.

SÃO PAULO: Diário Oficial do Estado de São Paulo, São Paulo.

BRITISH HONDURAS: Colonial Secretary, Belize.

CANADA:

Library of Parliament, Ottawa.

Clerk of the Senate, Houses of Parliament, Ottawa.

CHINA: National Central Library, Nanking.

CUBA: Biblioteca del Capitolio, Habana.

CZECHOSLOVAKIA: Bibliothèque de l'Assemblée Nationale, Prague.

DENMARK: Rigsdagens Bureau, Copenhagen.

EGYPT:

Chambre des Députés, Cairo. Sénat, Cairo.



## FRANCE:

Chambre des Députés, Service de l'Information Parlementaire Étrangère,  
Paris.

Bibliothèque du Sénat, au Palais du Luxembourg, Paris.

Bureau de Documentation Générale, Ministère des Finances, Paris I.

Bibliothèque, Direction des Accords commerciaux, Ministère du Commerce,  
Paris.

## GERMANY:

Deutsche Reichstags-Bibliothek, Berlin, N. W. 7.

Reichsfinanzministerium, Berlin, W. 8.

ANHALT: Anhaltische Landesbücherei, Dessau.

AUSTRIA: Bibliothek im Parlament, Wien I.

BRAUNSCHWEIG: Bibliothek des Braunschweigischen Staatsministeriums,  
Braunschweig.

MECKLENBURG: Staatsministerium, Schwerin.

OLDENBURG: Oldenburgisches Staatsministerium, Oldenburg i. O.

SCHAUMBURG-LIPPE: Schaumburg-Lippische Landesregierung, Bückeburg.

GIBRALTAR: Gibraltar Garrison Library Committee, Gibraltar.

GREAT BRITAIN: Library of the Foreign Office, London.

GREECE: Library of Parliament, Athens.

GUATEMALA: Biblioteca de la Asamblea Legislativa, Guatemala.

HONDURAS: Biblioteca del Congreso Nacional, Tegucigalpa.

HUNGARY: A Magyar országgyűlés könyvtára, Budapest.

INDIA: Legislative Department, Simla.

INDOCHINA: Gouverneur Général de l'Indochine, Hanoi.

IRAN: Library of the Iranian Parliament, Téhéran.

IRAQ: Chamber of Deputies, Baghdad.

IRISH FREE STATE: Dail Eireann, Dublin.

## ITALY:

Biblioteca della Camera dei Deputati, Rome.

Biblioteca del Senato del Regno, Rome.

Ufficio degli Studi Legislativi, Senato del Regno, Rome.

LATVIA: Valsts Biblioteka, Riga.

LEAGUE OF NATIONS: Library of the League of Nations, Geneva, Switzerland.

LEBANON: Ministère des Finances de la République Libanaise, Service du Ma-  
tériel, Beirut.

LIBERIA: Department of State, Monrovia.

MEXICO: Departamento Autónomo de Prensa y Publicidad, Mexico, D. F.

AGUASCALIENTES: Gobernador del Estado de Aguascalientes, Aguascalientes.

CAMPECHE: Gobernador del Estado de Campeche, Campeche.

CHIAPAS: Gobernador del Estado de Chiapas, Tuxtla Gutierrez.

CHIHUAHUA: Gobernador del Estado de Chihuahua, Chihuahua.

COAHUILA: Periódico Oficial del Estado de Coahuila, Palacio de Gobierno,  
Saltillo.

COLIMA: Gobernador del Estado de Colima, Colima.

DURANGO: Gobernador Constitucional del Estado de Durango, Durango.

GUANAJUATO: Secretaría General de Gobierno del Estado, Guanajuato.

GUERRERO: Gobernador del Estado de Guerrero, Chilpancingo.

JALISCO: Biblioteca del Estado, Guadalajara.

LOWER CALIFORNIA: Gobernador del Distrito Norte, Mexicali, B. C., Mexico.

MEXICO: Gaceta del Gobierno, Toluca, Mexico.

MICHOACÁN: Secretaría General de Gobierno del Estado de Michoacán,  
Morelia.

MORELOS: Palacio de Gobierno, Cuernavaca.

NAYARIT: Gobernador de Nayarit, Tepic.

NUEVO LEON: Biblioteca del Estado, Monterey.

OAXACA: Periódico Oficial, Palacio de Gobierno, Oaxaca.

PUEBLA: Secretaría General de Gobierno, Puebla.

QUERETARO: Secretaría General de Gobierno, Sección de Archivo, Queretaro.

SAN LUIS POTOSI: Congreso del Estado, San Luis Potosi.

SINALOA: Gobernador del Estado de Sinaloa, Culiacan.

SONORA: Gobernador del Estado de Sonora, Hermosillo.

TABASCO: Secretaría General de Gobierno, Sección 3a, Ramo de Prensa, Villahermosa.

TAMAULIPAS: Secretaría General de Gobierno, Victoria.

TLAXCALA: Secretaría de Gobierno del Estado, Tlaxcala.

VERA CRUZ: Gobernador del Estado de Vera Cruz, Departamento de Gobernación y Justicia, Jalapa.

YUCATÁN: Gobernador del Estado de Yucatán, Mérida, Yucatán.

NETHERLANDS: Bibliotheek van de Tweede Kamer der Staten-Generaal, The Hague.

NETHERLANDS INDIES: Volksraad van Nederlandsch-Indië, Batavia, Java.

NEW ZEALAND: General Assembly Library, Wellington.

NORWAY: Stortingets Bibliothek, Oslo.

PERU: Cámara de Diputados, Lima.

POLAND: Biblioteka Narodowa, Warsaw.

PORTUGAL: Secretario da Assembleia Nacional, Lisboa.

RUMANIA:

Bibliothèque de la Chambre des Députés, Bucharest.

Ministère des Affaires Étrangères, Bucharest.

SPAIN:

Biblioteca del Congreso Nacional, Madrid.

CATALUNYA: Biblioteca del Parlament de Catalunya, Barcelona. Suspended.

SWITZERLAND: Bibliothèque de l'Assemblée Fédérale Suisse, Berne.

BERN: Staatskanzlei des Kantons Bern.

ST. GALLEN: Staatskanzlei des Kantons St. Gallen.

SCHAFFHAUSEN: Staatskanzlei des Kantons Schaffhausen.

ZÜRICH: Staatskanzlei des Kantons Zürich.

TURKEY: Turkish Grand National Assembly, Ankara.

UNION OF SOUTH AFRICA:

Library of Parliament, Cape Town, Cape of Good Hope.

State Library, Pretoria, Transvaal.

URUGUAY: Diario Oficial, Calle Florida 1178, Montevideo.

VENEZUELA: Biblioteca del Congreso, Caracas.

VATICAN CITY: Biblioteca Apostolica Vaticana, Vatican City, Italy.

#### FOREIGN EXCHANGE AGENCIES

For several years the Robert College at Istanbul has been good enough to act as the exchange agency for Turkey and has promptly forwarded to their destinations all packages transmitted in its care. For this service the Institution is indebted to Robert College. The work is now being taken over by the Department of Printing and Engraving, Ministry of Education, Istanbul.

A list of the foreign exchange bureaus is given below. Most of those bureaus forward consignments of publications to the Institution for distribution in the United States.

## LIST OF AGENCIES

- ALGERIA, via France.  
 ANGOLA, via Portugal.  
 ARGENTINA: Comisión Protectora de Bibliotecas Populares, Canje Internacional, Calle Callao 1540, Buenos Aires.  
 AUSTRIA: Internationale Austauschstelle, National-Bibliothek, Wien I.  
 AZORES, via Portugal.  
 BELGIUM: Service Belge des Échanges Internationaux, Bibliothèque Royale de Belgique, Bruxelles.  
 BOLIVIA: Sent by mail.  
 BRAZIL: Serviço de Permutações Internacionais, Bibliotheca Nacional, Rio de Janeiro.  
 BRITISH GUIANA: Sent by mail.  
 BRITISH HONDURAS: Sent by mail.  
 BULGARIA: Sent by mail.  
 CANADA: Sent by mail.  
 CANARY ISLANDS, via Spain.  
 CHILE: Sent by mail.  
 CHINA: Bureau of International Exchange, Ministry of Education, Chungking.  
 COLOMBIA: Sent by mail.  
 COSTA RICA: Sent by mail.  
 CUBA: Sent by mail.  
 CZECHOSLOVAKIA: Service des Échanges Internationaux, Bibliothèque de l'Assemblée Nationale, Prague 1-79.  
 DANZIG: Sent by mail.  
 DENMARK: Service Danois des Échanges Internationaux, Kongelige Danske Videnskabernes Selskab, Copenhagen V.  
 DOMINICAN REPUBLIC: Sent by mail.  
 ECUADOR: Sent by mail.  
 EGYPT: Government Press, Publications Office, Bulaq, Cairo.  
 ESTONIA: Riigiraamatukogu (State Library), Tallinn.  
 FINLAND: Delegation of the Scientific Societies of Finland, Kasärngatan 24, Helsingfors.  
 FRANCE: Service Français des Échanges Internationaux, 110 Rue de Grenelle, Paris.  
 FRENCH GUIANA: Sent by mail.  
 GERMANY: Amerika-Institut, Universitätstrasse 8, Berlin, N. W. 7.  
 GREAT BRITAIN AND IRELAND: Wheldon & Wesley, 2-4 Earnshaw St., New Oxford St., London, W. C. 2.  
 GREECE: Sent by mail.  
 GREENLAND, via Denmark.  
 GUATEMALA: Sent by mail.  
 HAITI: Sent by mail.  
 HONDURAS: Sent by mail.  
 HUNGARY: Hungarian Libraries Board, Ferenciektere 5, Budapest, IV.  
 ICELAND, via Denmark.  
 INDIA: Superintendent of Government Printing and Stationery, Bombay.

- ITALY: Ufficio degli Scambi Internazionali, Ministero dell'Educazione Nazionale, Rome.
- JAMAICA: Sent by mail.
- JAPAN: International Exchange Service, Imperial Library of Japan, Uyeno Park, Tokyo.
- JAVA, via Netherlands.
- LATAKIA: Sent by mail.
- LATVIA: Service des Échanges Internationaux, Bibliothèque d'Etat de Lettonie, Riga.
- LEBANON: Sent by mail.
- LIBERIA: Sent by mail.
- LITHUANIA: Sent by mail.
- LUXEMBOURG, via Belgium.
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- MADEIRA, via Portugal.
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- MOZAMBIQUE, via Portugal.
- NETHERLANDS: International Exchange Bureau of the Netherlands, Royal Library, The Hague.
- NEWFOUNDLAND AND LABRADOR: Sent by mail.
- NEW SOUTH WALES: Public Library of New South Wales, Sydney.
- NEW ZEALAND: General Assembly Library, Wellington.
- NICARAGUA: Sent by mail.
- NORWAY: Service Norvégien des Échanges Internationaux, Bibliothèque de l'Université Royale, Oslo.
- PALESTINE: Jewish National and University Library, Jerusalem.
- PANAMA: Sent by mail.
- PARAGUAY: Sent by mail.
- PERU: Sent by mail.
- POLAND: Service Polonais des Échanges Internationaux, Bibliothèque Nationale, Warsaw.
- PORTUGAL: Secção de Trocas Internacionaes, Bibliotheca Nacional, Lisboa.
- QUEENSLAND: Bureau of Exchanges of International Publications, Chief Secretary's Office, Brisbane.
- RUMANIA: Soussecrétariat d'Etat de la Propagande, Direction de la Presse, Service des Échanges Internationaux, Bucharest.
- SALVADOR: Sent by mail.
- SOUTH AUSTRALIA: South Australian Government Exchanges Bureau, Government Printing and Stationery Office, Adelaide.
- SPAIN: Shipments suspended since August 1936.
- SUMATRA, via Netherlands.
- SURINAM: Sent by mail.
- SWEDEN: Kongliga Svenska Vetenskaps Akademien, Stockholm.
- SWITZERLAND: Service Suisse des Echanges Internationaux, Bibliothèque Centrale Fédérale, Berne.
- SYRIA: Sent by mail.
- TASMANIA: Secretary to the Premier, Hobart.
- THAILAND: Sent by mail.
- TRINIDAD: Sent by mail.
- TUNIS, via France.
- TURKEY: Ministry of Education, Department of Printing and Engraving, Istanbul.



UNION OF SOUTH AFRICA: Government Printing and Stationery Office, Cape-town, Cape of Good Hope.

UNION OF SOVIET SOCIALIST REPUBLICS: Library of the Academy of Sciences of the U. S. S. R., Exchange Service, Leningrad, V. O.

URUGUAY: Sent by mail.

VENEZUELA: Sent by mail.

VICTORIA: Public Library of Victoria, Melbourne.

WESTERN AUSTRALIA: Public Library of Western Australia, Perth.

YUGOSLAVIA: Section des Échanges Internationaux, Ministère des Affaires Étrangères, Belgrade.

Respectfully submitted.

F. E. GASS,  
*Acting Chief Clerk.*

Dr. C. G. ABBOT,  
*Secretary, Smithsonian Institution.*

## APPENDIX 7

### REPORT ON THE NATIONAL ZOOLOGICAL PARK

SIR: I have the honor to submit the following report on the operations of the National Zoological Park for the fiscal year ended June 30, 1939.

The regular appropriation made by Congress for the maintenance of the Park was \$227,000, all of which was expended.

#### IMPROVEMENTS

Extensive and important improvements of a varied nature were completed during the year. These were accomplished through close cooperation with W. P. A. labor under excellent supervision. This labor was available the entire year.

The grading between the large mammal house and the refreshment stand, begun in the last fiscal year, was completed. This includes a stone retaining wall around the base of the hill. A stone feed house 100 feet long and 30 feet wide was constructed. It is a one-story building with cellar arranged for storing vegetables and with ample storage space for hay and grains.

One of the largest of the jobs of the year was the grading and excavating of approximately 80,000 cubic yards of earth at what had been known as the buffalo hill. On this site one large buffalo paddock has been completed. This is an enclosure 170 by 140 to 150 feet, with a shelter 81 by 20 feet. On this site are also being constructed four paddocks, of nearly equal size, covering an area 350 by 150 feet. These four paddocks are of the barless type with dry moats separating visitors from the animals. For shelter on these paddocks two buildings, one 20 by 40 feet, and the other 20 by 48 feet, have been constructed. This entire unit is about 95 percent completed. A paddock 50 feet long and 30 feet wide has been added to the wild horse and zebra group.

A group of circular enclosures, making an exceptionally fine exhibition place for raccoons, prairie dogs, and cavies, have been constructed between the small mammal house and the antelope building. These are about 50 feet in diameter with concrete side walls of two of them about 3 feet deep and the other, for prairie dogs, with side walls in the ground about 10 feet and provision for bottom drainage.

A reinforced concrete pool of irregular design, with a small waterfall was completed back of the bird house. This is about 53 by 23 feet, with open moat effect and enclosed by a paneled guard rail.

A 3-inch water main was laid from the cockatoo cage to the rear of the bird house, a total of 625 linear feet.

New concrete walks were completed back of the bird house and around the large mammal house covering a total area of 1,200 square yards. A total of 7,880 square yards of bituminous concrete was laid. This included roads, walks, and a splendid parking area for buses on the main road below the large mammal house. About 3,400 linear feet of reinforced concrete curbing was constructed. An important improvement from the standpoint of safety was the construction of an underground duct for the high tension, three-phase electric supply line from the point at which it enters the Park, to the bird house. This covered a total distance of about 715 linear feet.

A total of 4,900 square yards of road were repaired and resurfaced with bipac. In connection with the excavating and fills, and new road and walk work, about 1,600 feet of surface and gutter drains were laid. The old smokestack, in use prior to the development of the new shops in 1936, was demolished.

A definite aid to the always-present parking problem was the improvement of several parking areas.

With the completion of the principal buildings and grading adjacent to the structures and landscape grading elsewhere about the Park, there were considerable barren areas that required planting. Accordingly, during the fiscal year extensive plantings were made of holly, flowering crab, flowering peach, dogwood, native forest trees, such as beech, walnut, ash, elm, hickory, Virginia cedar, Virginia pine, red pine, red spruce, hemlocks, and ornamental shrubs such as hibiscus, abelia, forsythia, spirea, japonica, azaleas, and privet. In all, more than 400 trees and 600 shrubs were planted and about 5 acres were seeded to grass.

The Zoo is indebted to Dr. Francis B. Lincoln, of the Maryland Agricultural Experiment Station, for hollies, flowering crabs, flowering peaches, evergreens, roses, jasmine, sand cherries, ilex, and other shrubs; to the United States Forest Service for pines and spruces; to the United States Soldiers' Home for evergreens, japonica, amelanchier, crepe myrtle, magnolias, and figs; to Clifford Lanham, of the District Nursery, for Chinese elm and maples; to Dr. Ira N. Gabrielson, Chief of the United States Biological Survey, for sweet gum and pines. Mrs. Mary G. Corby very kindly permitted us to obtain cedars, wisterias, barberries, and pines from her estate.

These improvements were carried on with the minimum of cost. All stone used was quarried in the Park. Sand and gravel were also obtained from the creek bed in the Park.

#### RESTAURANT

The Public Works Administration allotted the sum of \$90,000 for the much-needed restaurant building at the Park.

Work on plans for this building was commenced immediately by the Supervising Architect, Procurement Division, Treasury Department, and in a short time it is expected that bids will be let and construction begun.

This will be a marked improvement in the service that the Zoo gives to the public.

#### FIELD WORK

The appropriation bill for the Zoo carried an item of \$2,000 for travel. With part of this money Malcolm Davis of the Zoo staff was sent to Calcutta to bring back an Indian rhinoceros that had been captured by the Forestry Service of Assam through the interest of United States Consul General White. At the present time Mr. Davis is at sea with the rhino and a shipment of other animals collected by him.

With the remainder of the money a short trip was made by the Director to the Argentine. A small collection of animals was taken for exchange with the zoos in Buenos Aires, La Plata, and Cordoba. United States Consul General Monnett B. Davis took an active interest in the expedition, and Dr. A. Holmberg, Director of the Buenos Aires Zoo, planned the field work. The Minister of Agriculture sent the party in his yacht down the Delta of the Parana. The Governor of Cordoba furnished transportation into the hills, and the National Park Service supplied transportation to the famous Nahuel Huapi National Park. On all of these side trips specimens were obtained. The zoos presented many specimens, as did Natalio Botana, José M. Cinaghi, and Ennio Arrigutti of the Aquarium Kin-Yu. Tom Davis, of Buenos Aires, made a large collection of Argentine tortoises and terrapins which he presented to the expedition. On the return voyage a number of specimens were obtained from the zoo at Rio Janeiro, and some snakes from the Instituto Butantan at Sao Paolo. In all, 70 crates of live animals were landed at Washington. There are many difficulties connected with traveling with animals, but the officials and the officers and crew of the Moore-McCormack Lines, Inc., cooperated in every way possible, and thanks are due to them for making the expedition such a success.

A summary of the specimens brought back follows:

Class	Species	Individuals
Mammals-----	12	35
Birds-----	26	177
Reptiles-----	17	98
Amphibians-----	3	6
	—	—
Total-----	58	316



## NEEDS OF THE ZOO

The Zoo now has four fine exhibition buildings, but there are three old ones, housing lions, monkeys, and antelopes, that are most unsatisfactory and unsuitable buildings. It is hoped that appropriations can be made to replace these structures with modern buildings which would complete the development of the Zoo as far as large animal houses are concerned.

## VISITORS FOR THE YEAR

There was a decrease in the attendance for the year compared with last year. The return in the fall of 1937 of the National Geographic-Smithsonian Institution East Indies Expedition brought out large crowds which continued visiting the Park far into the winter, when attendance is usually small.

July-----	251,000	February-----	118,530
August-----	239,500	March-----	151,700
September-----	263,400	April-----	291,600
October-----	158,100	May-----	232,100
November-----	134,400	June-----	193,600
December-----	80,200		
January-----	86,950	Total-----	2,201,080

The attendance of organizations, mainly classes of students, of which there is definite record, was 37,220, from 699 different schools in 22 States and the District of Columbia as follows:

State	Number of persons	Number of parties	State	Number of persons	Number of parties
Alabama-----	30	1	New Jersey-----	2,806	32
Connecticut-----	449	9	New York-----	1,965	25
Delaware-----	242	6	North Carolina-----	783	24
District of Columbia-----	8,662	152	Ohio-----	596	17
Florida-----	66	2	Oklahoma-----	80	1
Georgia-----	377	9	Pennsylvania-----	6,562	134
Illinois-----	37	1	South Carolina-----	541	16
Indiana-----	20	1	Tennessee-----	137	4
Kentucky-----	50	1	Virginia-----	6,077	131
Maine-----	42	1	West Virginia-----	742	19
Maryland-----	6,404	102	Miscellaneous-----	137	2
Massachusetts-----	276	6			
Michigan-----	139	3	Total-----	37,220	699

About 3 o'clock every afternoon, except Sundays and holidays, a census is made of the cars parked on the Zoo grounds. During the year, 27,932 were so listed, representing every State in the Union, Canada, Canal Zone, Cuba, Panama, Hawaii, Bahamas, Puerto Rico, Guam, and the Philippine Islands.

Since the total number is merely a record of those actually parked at one time, it is not of value as indicating a total attendance but

is of importance as showing the percentage attendance by States, territories, and countries. The District of Columbia comprised slightly over 46 percent; Maryland, 19 percent; Virginia, 11 percent; and the remaining cars were from other States, Territories, and countries. During years in which counts have been made on Sunday as well as during the week it has been found that the percentage of cars from the District of Columbia, Maryland, and Virginia is less, and the percentage of more distant States is correspondingly increased. This is brought about by tourists coming to the Zoo on Sundays when other points of interest are closed to them.

#### ACCESSIONS

*Gifts.*—A number of specimens were received as gifts during the year. These were gratefully received and acknowledgement is made in a complete list of donors and their gifts. Among the most interesting additions were 10 Louisiana herons and 11 snowy egrets from A. E. McIlhenny, Avery Island, La. Dr. Waldo L. Schmitt, of the United States National Museum presented 76 land hermit crabs; also, as a result of the Presidential cruise to southern waters in the summer of 1938, in which he participated, he presented the Park with a Galápagos hawk, 2 species of snakes never before exhibited at the Park, one from James Island and one from Hood Island. From the same cruise, through Lt. L. H. Le Hardy, the Park received a Galápagos iguana. A fine collection of Central American reptiles was received from Costello Craig, Washington, D. C.

The United States Biological Survey, through Roy Fugit and Joseph L. Crummett, Pendleton, Oreg., presented 6 Nevada long-eared foxes.

#### DONORS AND THEIR GIFTS

H. A. Allard, Washington, D. C., gopher turtle.  
 O. R. Anderson, Washington, D. C., 2 skunks.  
 J. P. Andrews, Farmville, Va., bald eagle.  
 Tom C. Atkinson, Toledo, Ohio, 2 massasaugas.  
 Dr. L. Avery, Beltsville, Md., opossum.  
 Mrs. Pedro Ayson, Washington, D. C., Cuban parrot.  
 Mrs. J. H. Baden, Washington, D. C., barred owl.  
 A. G. Baker, Youngstown, Ohio, 6 massasaugas.  
 L. R. Baker, Washington, D. C., oven bird.  
 Edgar Bayly, Washington, D. C., 2 alligators.  
 Charles Bell, Washington, D. C., Florida gallinule.  
 Mrs. Boccabella, Washington, D. C., 2 grass paroquets.  
 Mrs. Bon, Washington, D. C., alligator.  
 Jack Brown, Washington, D. C., 2 rice birds.  
 Ralph D. Brown, Washington, D. C., 4 European goldfinches.

- Frank H. Burch, Silver Spring, Md., raccoon.  
A. L. Burnett, Clarendon, Va., raccoon.  
D. E. Butler, Washington, D. C., Philippine monkey.  
Walter J. Butler, Washington, D. C., towhee.  
Mrs. E. Buzzone, Washington, D. C., yellow-naped parrot.  
N. W. Canter, Washington, D. C., large brown bat.  
O. W. Chesley, Fairfax, Va., broad-winged hawk.  
Donald Collier, Alexandria, Va., opossum.  
Mrs. Connoles, Arlington, Va., crow.  
Walter Coombs, Washington, D. C., albino grass snake.  
James Coon, Washington, D. C., red-tailed hawk.  
R. B. Covington, Washington, D. C., 2 mallards.  
Costello Craig, Washington, D. C., 3 Central American musk turtles, 2 ornate turtles, 4 caimans, 3 coatimundis, fer-de-lance, 15 emperor boas, 2 indigo snakes, pike-headed tree snake, vine snake, 3 night snakes, parrot snake, 2 tarantulas.  
Lindsay Crawford, Washington, D. C., troupiial.  
J. E. Darrer, Washington, D. C., barred owl.  
Malcolm Davis, Washington, D. C., 13 marine toads.  
Walter B. Davis, Washington, D. C., 2 grass paroquets.  
Freddie Deininger, Washington, D. C., opossum, rabbit.  
L. L. Derrick, Washington, D. C., 2 fox squirrels.  
Congressman John D. Dingell, Washington, D. C., opossum.  
Mrs. L. T. Ditoran, Berwyn, Md., chain or king snake.  
Mrs. H. W. Elmore, Washington, D. C., raccoon.  
Mrs. K. C. Ewing, Pikesville, Md., 2 coatimundis, 2 brown capuchins.  
Wesley Feagin, Long Beach, Calif., 2 sidewinder rattlesnakes, 2 Pacific gopher snakes, 3 desert leaf-nosed snakes, 2 California garden snakes, 2 lined racers, California king snake, desert gopher snake, banded gecko, giant rock Uta, 2 desert scaly lizards.  
Mrs. Fisher, Washington, D. C., false chameleon.  
Geo. Fleming and Wm. Lee, Washington, D. C., purple gallinule.  
Forest Service, Department of Agriculture, Cherokee National Forest, Cleveland, Tenn., wild boar.  
M. B. Foster, Orlando, Fla., worm snake.  
Miss Harriet Freebey, Silver Spring, Md., barred owl.  
Alonzo Gardner, Washington, D. C., alligator.  
J. H. Gawlor, Washington, D. C., 2 Pekin ducks.  
Frank Godwin, Capitol Heights, Md., banded rattlesnake.  
Slad Goodnaugh, Fairfax, Va., 2 flying squirrels.  
W. T. Grant, Richmond, Va., kinkajou.  
Mrs. E. Gruening, Washington, D. C., 2 sparrow hawks.  
Edw. Gwynn, Washington, D. C., horned lizard.  
J. M. Hamlet, Portland, Oreg., 4 Oregon rattlesnakes.  
Harold Hand, Washington, D. C., pied-billed grebe.  
W. B. Harrison, Wildwood, Fla., worm snake.  
Mrs. Daniel O. Hastings, Wilmington, Del., shama thrush.  
W. H. Hawkins, Washington, D. C., red fox.  
Mrs. H. E. Hay, Arlington, Va., 4 opossums.  
Henry Holden, Washington, D. C., coatimundi.  
A. Brazier Howell, Ruxton, Md., skunk.  
Chas. B. Hunt, Hanksville, Utah, 4 midget rattlesnakes.

- Walter Ilgenfritz, Washington, D. C., alligator.  
 M. Jacona, Washington, D. C., alligator.  
 Chester Jennings, Washington, D. C., Virginia rail.  
 Mrs. H. M. Kaiser, Berwyn, Md., opossum.  
 Mrs. F. Kass, Washington, D. C., grass paroquet.  
 Robert Keeling, Washington, D. C., zebra finch, cut-throat finch, Java sparrow.  
 Claude Keys, Washington, D. C., gray fox.  
 Jimmie Koehl, Hyattsville, Md., black widow spider.  
 Mr. Kunkel, Carlisle, Pa., 5 long-tailed salamanders.  
 Miss J. Lawless, Washington, D. C., snapping turtle.  
 Lt. L. H. Le Hardy, U. S. N., Galápagos iguana.  
 C. S. Little, Waycross, Ga., 2 alligators.  
 M. Little, Washington, D. C., snapping turtle.  
 O. M. Locke, New Braunfels, Tex., 3 nine-banded armadillos, 50 horned lizards.  
 James Lockheed, Washington, D. C., 2 rhesus monkeys.  
 H. P. Loding, Mobile, Ala., diamond-backed rattlesnake.  
 Norman Lowe, Rockville, Md., banded rattlesnake.  
 Dr. Bertha Lutz, Rio de Janeiro, Brazil, 3 horned frogs.  
 Dr. J. W. MacConnell, Davidson, N. C., red-crowned parrot.  
 Miss Barbara Madden, Washington, D. C., Cooper's hawk.  
 Wm. Mahaffey, South Carolina, eastern chipmunk.  
 Mrs. LeRoy Mark, Washington, D. C., rhesus monkey.  
 E. W. Marlowe, Jr., Washington, D. C., canary.  
 Menno Martin, Mishawaka, Ind., albino meadow mouse.  
 Dr. William R. Maxon, Washington, D. C., red-fronted parrot.  
 Maj. S. L. McCroskey, Washington, D. C., 2 grass paroquets.  
 A. E. McIlhenny, Avery Island, La., 10 Louisiana herons, 11 snowy egrets.  
 H. S. McKinley, Washington, D. C., 2 woodchucks or ground hogs.  
 Meems Bros. & Ward, New York, N. Y., 4 water moccasins.  
 Leroy Miller, Washington, D. C., horned grebe.  
 James Moody, Baltimore, Md., brown capuchin, 2 alligators.  
 H. G. Moore, Silver Spring, Md., American coot.  
 W. F. Morian, Washington, D. C., hog-nosed snake.  
 R. F. Mullen, Chevy Chase, Md., horned lizard.  
 J. P. Myers, Arlington, Va., barred owl.  
 John H. Newlin, Fort Hunt, Va., 3 red-tailed hawks.  
 Dr. G. K. Noble, New York, N. Y., 4 Surinam toads, 6 mouth-breeding fish.  
 Alva Nye, Jr., Washington, D. C., golden eagle.  
 Alvara Obregon, Mexico, 2 turtles.  
 T. W. Odom, Washington, D. C., bittern.  
 Mrs. Alma K. Palsgrove, Washington, D. C., 2 grass paroquets.  
 Petroleum Heat & Power Co., Washington, D. C., alligator.  
 Alan Philips, Baltimore, Md., piranha or cannibal fish.  
 Mrs. Barbara Polakov, Fairfax, Va., Javan macaque.  
 G. F. Pollock, Washington, D. C., red-headed lovebird.  
 W. R. Poore, Bethesda, Md., 2 skunks.  
 A. M. Raymond, Silver Spring, Md., horned grebe.  
 Miss M. L. Reavis, Washington, D. C., opossum.  
 T. M. Rees, Washington, D. C., alligator.  
 A. G. Reynolds, Washington, D. C., 2 prairie dogs.  
 Lowry Riggs, Rockville, Md., 3 loons.  
 D. F. Rinaca, Washington, D. C., great horned owl.



B. H. Roberts, Washington, D. C., 4 grass paroquets.  
 George A. Robinson, Falls Church, Va., 3 woodcocks.  
 D. L. Rodgers, Washington, D. C., Pekin duck.  
 Mrs. V. F. Rodrigo, Baltimore, Md., horned lizard.  
 E. J. Rosen, Alexandria, Va., red-tailed hawk.  
 J. S. Sallak, Washington, D. C., loon.  
 Robert Sanford, Washington, D. C., opossum.  
 R. F. Sappington, Chevy Chase, Md., barn owl.  
 Dr. Waldo Schmitt, Washington, D. C., 76 land hermit crabs, Galápagos hawk,  
     James Island snake, Hood Island snake.  
 Loyd Schneider, Washington, D. C., 2 ospreys or fish hawks.  
 J. W. Scrivener, Washington, D. C., sparrow hawk.  
 H. T. Shannon, Washington, D. C., golden pheasant.  
 L. A. Sharp, Washington, D. C., 3 flying squirrels, 2 white-footed mice.  
 Miss Ola M. Shaw, Washington, D. C., double yellow-headed parrot.  
 Col. and Mrs. J. F. Siler, Washington, D. C., 2 troupials.  
 Allen Smith, Washington, D. C., garter snake.  
 G. B. Smith, Washington, D. C., 2 antelope squirrels.  
 Peggy Wood Smith, Washington, D. C., 2 Pekin ducks.  
 Robert D. Smith, Washington, D. C., horned grebe.  
 Mrs. Richard Southgate, Washington, D. C., troupial.  
 S. S. Spahr, Washington, D. C., blue jay.  
 Donald Sparrow, Washington, D. C., red-shouldered hawk.  
 E. Sullivan, Fredericksburg, Va., barred owl.  
 H. F. Thomas, Washington, D. C., woodchuck or ground hog.  
 H. O. Thompson, Washington, D. C., raccoon.  
 I. B. Tice, Washington, D. C., false chameleon.  
 R. E. Tiller, Washington, D. C., blue bird.  
 W. B. Tyrrell, Takoma Park, Md., barred owl.  
 U. S. Biological Survey through Roy Fugit and Jos. L. Crummett, Pendleton,  
     Oreg., 6 Nevada long-eared foxes.  
 U. S. Marine Barracks, Quantico, Va., bald eagle.  
 Virginia Upton, Lanham, Md., 2 muscovy ducks.  
 E. G. Van Noy, Washington, D. C., alligator.  
 Miss Barbara Vierling, Silver Spring, Md., 3 guinea pigs.  
 J. E. Vincent, Washington, D. C., Cuban conure.  
 Mrs. C. B. Wagoner, Buckroe Beach, Va., 2 Amazon parrots.  
 Mrs. B. Waldron, Washington, D. C., painted bunting.  
 Mrs. Z. Wallace, Takoma Park, Md., screech owl.  
 J. L. Ward, Washington, D. C., woodchuck or ground hog.  
 Theo. A. Warner, Washington, D. C., flying squirrel.  
 Washington Post, Washington, D. C., opossum.  
 George Wech, Washington, D. C., double yellow-headed parrot.  
 A. P. Wheatley, Hyattsville, Md., 2 Pekin ducks.  
 Mrs. E. L. White, Washington, D. C., alligator.  
 Norman Winkler, Huntington, W. Va., hog-nosed snake.  
 Mrs. T. F. Woodward, Washington, D. C., white rabbit.  
 Holland Wyatt, Woodbridge, Va., blacksnake.  
 Mrs. Walter Wyatt, Washington, D. C., wood duck.

*Births.*—There were 48 mammals born and 15 birds hatched during the year.

## MAMMALS

<i>Scientific name</i>	<i>Common name</i>	<i>Number</i>
<i>Ammotragus lervia</i> -----	Aoudad-----	4
<i>Axis axis</i> -----	Axis deer-----	7
<i>Bison bison</i> -----	American bison-----	3
<i>Bos indicus</i> -----	Zebu-----	1
<i>Cervus elaphus</i> -----	Red deer-----	2
<i>Choeropsis liberiensis</i> -----	Pigmy hippopotamus-----	1
<i>Dama dama</i> -----	Fallow deer-----	6
<i>Felis onca</i> -----	Jaguar-----	2
<i>Hemitragus jemlahicus</i> -----	Tahr-----	1
<i>Magus maurus</i> -----	Moor monkey-----	1
<i>Macaca mordax</i> -----	Javan monkey-----	2
<i>Macaca mulatta</i> -----	Rhesus monkey-----	1
<i>Macaca nemistrina</i> -----	Pig-tailed macaque-----	1
<i>Ovis europaeus</i> -----	Mouflon-----	1
<i>Procyon lotor</i> -----	Black raccoon-----	3
<i>Pseudois nahura</i> -----	Bharal or blue sheep-----	2
<i>Sika nippon</i> -----	Japanese deer-----	4
<i>Taurotragus oryx</i> -----	Eland-----	1
<i>Thalarcos maritimus</i> × <i>Ursus middendorffi</i> -----	Hybrid bear-----	2
<i>Ursus arctos</i> -----	European brown bear-----	1
<i>Ursus gyas</i> -----	Alaska peninsula bear-----	2

## BIRDS

<i>Chrysolophus pictus</i> -----	Golden pheasant-----	5
<i>Nycticorax nycticorax naevius</i> -----	Black-crowned night heron-----	9
<i>Spheniscus demersus</i> -----	Jackass penguin-----	1

*Exchanges.*—A most interesting lot of South American animals were received on an exchange basis with the zoos at Buenos Aires and La Plata, Argentina. These were brought to the Park by the National Zoological Park-Argentina Expedition. Another important exchange was with the Cole Brothers Circus, in which the Zoo received a female hippopotamus and a male yak.

*Purchases.*—Specimens acquired by purchase and worthy of mention include a Malayan pangolin, one pair of Atlantic walruses, one pair of Bengal tigers, one pair of alpacas, a harpy eagle, and a pair of reticulated giraffes, the first of this species ever exhibited at the Park.

## REMOVALS

*Deaths.*—Major losses during the year included one brown hyena, one Malayan pangolin, two walruses, one colobus monkey, a prong-horn antelope, and two shoebill storks. As in the past, all specimens of scientific value that died during the year were sent to the National Museum.

## ANIMALS IN COLLECTION THAT HAD NOT PREVIOUSLY BEEN EXHIBITED

## MAMMALS

<i>Scientific name</i>	<i>Common name</i>
<i>Didelphis paraguayensis</i> -----	Paraguay opossum.
<i>Giraffa reticulata</i> -----	Reticulated giraffe.
<i>Hylochoerus meinertzhageni</i> -----	Forest hog.
<i>Odobenus rosmarus</i> -----	Atlantic walrus.
<i>Paramanis javanica</i> -----	Malayan pangolin.
<i>Potamochoerus porcus keniae</i> -----	White-faced bush pig.

## BIRDS

<i>Anas braziliensis</i> -----	Brazilian teal.
<i>Anas spinicauda</i> -----	Chilean pintail.
<i>Buteo galapagoensis</i> -----	Galápagos hawk.
<i>Buteo melanoleucus</i> -----	South American buzzard eagle.
<i>Coracias caudatus lorti</i> -----	Pink-throated roller.
<i>Daptrius americanus</i> -----	Carancho.
<i>Eucorax comrii</i> -----	Curl-crested manucode.
<i>Furnarius rufus</i> -----	Rufous ovenbird.
<i>Leipoa ocellata</i> -----	Mallee fowl.
<i>Milvago chimango</i> -----	Chimango.
<i>Phimosus infuscatus</i> -----	Dusky ibis.
<i>Threskiornis spinicollis</i> -----	Straw-necked ibis.
<i>Trupialis defilippi</i> -----	Military starling.

## REPTILES

<i>Boa occidentalis</i> -----	Argentine boa.
<i>Bothrops neuwiedii</i> -----	Maximilian's viper.
<i>Bufo arenarum</i> -----	Argentine sand toad.
<i>Calyptocephalus gayii</i> -----	Chilean aquatic frog.
<i>Dromicus dorsalis</i> -----	James Island snake.
<i>Dromicus hoodensis</i> -----	Hood Island snake.
<i>Pseudemys d'orbignyi</i> -----	D'Orbigny's turtle.
<i>Tupinambis rufescens</i> -----	Red tegu lizard.

## Statement of accessions

Class	Received from National Zoological Park-Argentine Expedition	Pre-sented	Born	Re-ceived in exchange	Pur-chased	On deposit	Total
Mammals-----	35	82	48	11	53	12	241
Birds-----	177	125	15	7	22	7	353
Reptiles-----	98	121	-----	3	102	17	341
Amphibians-----	6	8	-----	-----	-----	-----	14
Fishes-----	-----	7	-----	-----	30	7	44
Arachnids-----	-----	3	-----	-----	-----	-----	3
Mollusks-----	-----	76	-----	-----	-----	-----	76
Total-----	316	422	63	21	207	43	1,072

## Summary

Animals on hand July 1, 1938.....	2,754
Accessions during the year.....	1,072
Total animals in collection during year.....	3,826
Removal from collection by death, exchange, and return of animals on deposit .....	1,376
In collection June 30, 1939.....	2,450

## Status of collection

Class	Species	Individuals	Class	Species	Individuals
Mammals.....	226	725	Insects.....	1	25
Birds.....	338	1,074	Mollusks.....	1	3
Reptiles.....	126	441	Crustaceans.....	1	9
Amphibians.....	23	89	Total.....	743	2,450
Fishes.....	25	79			
Arachnids.....	2	5			

## ANIMALS IN THE NATIONAL ZOOLOGICAL PARK, JUNE 30, 1939

## MAMMALS

## MARSUPIALIA

	Number
Didelphidae:	
<i>Didelphis paraguayensis</i> .....	Paraguay opossum..... 1
<i>Didelphis virginiano</i> .....	Opossum..... 6
<i>Metachirus opossum</i> .....	Zorro or banana opossum..... 1
Dasyuridae:	
<i>Sarcophilus ursinus</i> .....	Tasmanian devil..... 2
Phalangeridae:	
<i>Petaurus breviceps</i> .....	Lesser flying phalanger..... 4
<i>Trichosurus vulpecula</i> .....	Vulpine opossum..... 1
Macropodidae:	
<i>Dendrolagus inustus</i> .....	Tree kangaroo..... 2
<i>Dendrolagus ursinus</i> × <i>D. inustus</i> .....	Hybrid tree kangaroo..... 1

## INSECTIVORA

Erinaceidae:	
<i>Atelerix hindei</i> .....	East African hedgehog..... 3

## CHIROPTERA

Vespertilionidae:	
<i>Eptesicus fuscus</i> .....	Large brown bat..... 2

## CARNIVORA

Felidae:	
<i>Acinonyx jubatus</i> .....	Cheeta..... 2
<i>Felis concolor</i> .....	Puma..... 5
<i>Felis leo</i> .....	Lion..... 6
<i>Felis ocreata</i> .....	Uganda wild cat..... 1
<i>Felis onca</i> .....	{ Jaguar..... 5
	{ Black jaguar..... 2



## CARNIVORA—continued

## Felidae—Continued.

		Number
<i>Felis pardalis</i> .....	Ocelot.....	1
<i>Felis pardinoides</i> .....	Lesser tiger cat.....	1
<i>Felis pardus</i> .....	{ Indian leopard.....	4
	{ Black Indian leopard.....	2
<i>Felis pardus suahelicus</i> .....	East African leopard.....	1
<i>Felis tigris</i> .....	Bengal tiger.....	2
<i>Felis tigris longipilis</i> .....	Siberian tiger.....	2
<i>Felis tigris sondaicus</i> .....	Sumatran tiger.....	4
<i>Herpailurus yaguarondi</i> .....	Eyra or yaguarondi.....	1
<i>Lynx baileyi</i> .....	Bailey's lynx.....	1
<i>Lynx caracal</i> .....	Caracal.....	1
<i>Lynx rufus</i> .....	Bay lynx.....	4
<i>Lynx uinta</i> .....	Bobcat.....	1
<i>Neofelis nebulosa</i> .....	Clouded leopard.....	1
<i>Oncifelis geoffreyi</i> .....	Geoffrey's cat.....	2
<i>Profelis temmincki</i> .....	Golden cat.....	3

## Viverridae:

<i>Arctictis binturong</i> .....	Binturong.....	4
<i>Civettictis civetta</i> .....	Civet.....	1
<i>Genetta dongolana neumanni</i> .....	Neumann's genet.....	1
<i>Moschothera megaspila</i> .....	Burmese civet.....	1
<i>Paradoxurus hermaphroditus</i> .....	Small-toothed palm civet.....	2

## Hyaenidae:

<i>Crocota crocata germinans</i> .....	East African spotted hyena.....	1
<i>Hyaena brunnea</i> .....	Brown hyena.....	1

## Canidae:

<i>Canis dingo</i> .....	Dingo.....	2
<i>Canis latrans</i> .....	{ Albino coyote.....	1
	{ Coyote.....	8
<i>Canis lairans</i> × <i>domestica</i> .....	Coyote and dog hybrid.....	2
<i>Canis lupus lycaon</i> .....	Timber wolf.....	1
<i>Canis lupus nubilus</i> .....	Wolf.....	6
<i>Canis rufus</i> .....	Texas red wolf.....	5
<i>Chrysocyon jubata</i> .....	Maned wolf.....	1
<i>Cuon javanicus sumatrensis</i> .....	Sumatran wild dog.....	1
<i>Dusicyon sp.</i> .....	South American fox.....	1
<i>Dusicyon sp.</i> .....	South American fox.....	2
<i>Urocyon cinereoargenteus</i> .....	Gray fox.....	4
<i>Vulpes fulva</i> .....	Red fox.....	7
<i>Vulpes macrotis nevadensis</i> .....	Nevada long-eared fox.....	6

## Procyonidae:

<i>Nasua narica</i> .....	Coatimundi.....	10
<i>Potos flavus</i> .....	Kinkajou.....	4
<i>Procyon cancrivorus</i> .....	Crab-eating raccoon.....	1
	{ Raccoon.....	9
<i>Procyon lotor</i> .....	{ Raccoon (albino).....	1
	{ Black raccoon.....	9

## Bassariscidae:

<i>Bassariscus astutus</i> .....	Ring-tail or cacomistle.....	2
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## CARNIVORA—continued

		Number
<b>Mustelidae:</b>		
<i>Arctonyx collaris</i> .....	Hog badger.....	2
<i>Charronia flavigula henricii</i> .....	Asiatic marten.....	1
<i>Galictis barbara barbara</i> .....	White tayra.....	2
<i>Grissonella huronax</i> .....	Grisson.....	2
<i>Gulo luscus</i> .....	Wolverine.....	2
<i>Lutra canadensis voga</i> .....	Florida otter.....	2
<i>Mellivora capensis</i> .....	Ratel.....	1
<i>Mephitis nigra</i> .....	Skunk.....	11
<i>Micraonyx leptonyx</i> .....	Small-clawed otter.....	1
<i>Mustela eversmanni</i> .....	Ferret.....	3
<i>Mustela noveboracensis</i> .....	Weasel.....	1
<i>Mustela vison vison</i> .....	Mink.....	1
<b>Ursidae:</b>		
<i>Euarctos americanus</i> .....	American black bear.....	3
<i>Euarctos emmonsii</i> .....	Glacier bear.....	1
<i>Helarctos malayanus</i> .....	Malay or sun bear.....	1
<i>Thalarctos maritimus</i> .....	Polar bear.....	2
<i>Thalarctos maritimus</i> × <i>Ursus middendorffi</i> .....	Hybrid bear.....	5
<i>Ursus arctos</i> .....	European brown bear.....	2
<i>Ursus gyas</i> .....	Alaska Peninsula bear.....	5
<i>Ursus kiddyi</i> .....	Kiddy's brown bear.....	1
<i>Ursus middendorffi</i> .....	Kodiak brown bear.....	4
<i>Ursus sitkensis</i> .....	Sitka brown bear.....	3
<i>Ursus thibetanus</i> .....	Himalayan bear.....	3

## PINNIPEDIA

<b>Otariidae:</b>		
<i>Zalophus californianus</i> .....	California sea lion.....	2
<b>Phocidae:</b>		
<i>Phoca richardii</i> .....	Pacific harbor seal.....	3

## PRIMATES

<b>Lemuridae:</b>		
<i>Nycticebus coucang</i> .....	Slow loris.....	4
<i>Perodicticus potto</i> .....	Potto.....	1
<b>Callitrichidae:</b>		
<i>Leontocebus rosalia</i> .....	Lion-headed or golden marmoset.....	3
<i>Mico argentata</i> .....	Black-tailed marmoset.....	1
<b>Cebidae:</b>		
<i>Cebus apella</i> .....	Brown capuchin.....	1
<i>Cebus capucinus</i> .....	White-throated capuchin.....	2
<i>Cebus fatuellus</i> .....	Weeping capuchin.....	3
<i>Cebus</i> sp.....	Gray capuchin.....	1
<b>Cercopithecidae:</b>		
<i>Cercocebus fuliginosus</i> .....	Sooty mangabey.....	6
<i>Cercopithecus aethiops aethiops</i> .....	Grivet monkey.....	1
<i>Cercopithecus aethiops sabaeus</i> .....	Green guenon.....	6
<i>Cercopithecus diana</i> .....	Diana monkey.....	1
<i>Cercopithecus neglectus</i> .....	De Brazza's guenon.....	1
<i>Cercopithecus petaurista</i> .....	Lesser white-nosed guenon.....	2
<i>Cercopithecus pygerythra</i> .....	Vervet guenon.....	1

## PRIMATES—continued

## Cercopithecidae—Continued.

Number

<i>Cercopithecus roloway</i> .....	Roloway monkey.....	1
<i>Erythrocebus patas</i> .....	Patas monkey.....	7
<i>Macaca fuscata</i> .....	Japanese monkey.....	1
<i>Macaca lasiotis</i> .....	Chinese macaque.....	2
<i>Macaca mordax</i> .....	Javan monkey.....	15
<i>Macaca mulatta</i> .....	Rhesus monkey.....	9
<i>Macaca nemestrina</i> .....	Pig-tailed macaque.....	7
<i>Macaca silenus</i> .....	Wanderoo monkey.....	1
<i>Magus maurus</i> .....	Moor monkey.....	4
<i>Mandrillus leucophaeus</i> .....	Drill.....	1
<i>Mandrillus sphinx</i> .....	Mandrill.....	2
<i>Papio comatus</i> .....	Chacma.....	2
<i>Papio papio</i> .....	West African baboon.....	1
<i>Presbytis pyrrhus</i> .....	Javan langur or lotong.....	1
<i>Theropithecus gelada</i> .....	Gelada baboon.....	1

## Hylobatidae:

<i>Hylobates agilis</i> .....	Sumatran gibbon.....	1
<i>Hylobates lar pileatus</i> .....	Black-capped gibbon.....	3
<i>Symphalangus syndactylus</i> .....	Siamang gibbon.....	1

## Pongidae:

<i>Pan satyrus</i> .....	Chimpanzee.....	3
<i>Pongo abelii</i> .....	Sumatran orangutan.....	2
<i>Pongo pygmaeus</i> .....	Bornean orangutan.....	1

## RODENTIA

## Sciuridae:

<i>Ammospermophilus leucurus</i> .....	Antelope squirrel.....	2
<i>Caliosciurus melanops</i> .....	Sumatran tricolored squirrel.....	2
<i>Cynomys ludovicianus</i> .....	Prairie dog.....	12
<i>Glaucomys volans</i> .....	Flying squirrel.....	7
<i>Marmota flaviventris</i> .....	Marmot or whistler.....	2
<i>Marmota monax</i> .....	Woodchuck or ground hog.....	3
<i>Sciurus finlaysoni</i> .....	Lesser white squirrel.....	3
<i>Sciurus hoffmani</i> .....	Hoffman's squirrel.....	2
<i>Sciurus niger</i> .....	Southern fox squirrel.....	8
<i>Sciurus niger</i> .....	Fox squirrel.....	1
<i>Tamias striatus</i> .....	Eastern chipmunk.....	2
<i>Tamiasciurus hudsonicus</i> .....	Red squirrel.....	1

## Heteromyidae:

<i>Dipodomys deserti</i> .....	Desert kangaroo rat.....	1
<i>Dipodomys merriami</i> .....	Merriam kangaroo rat.....	2
<i>Perognathus parvus</i> .....	Great Basin pocket mouse.....	2
<i>Perognathus penicillatus</i> .....	Desert pocket mouse.....	1

## Jaculidae:

<i>Jaculus jaculus</i> .....	Egyptian jerboa.....	1
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## Castoridae:

<i>Castor canadensis</i> .....	Beaver.....	1
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## Cricetidae:

<i>Cricetomys gambianus</i> .....	Gambia pouched rat.....	2
<i>Neotoma floridana attwateri</i> .....	Round-tailed wood rat.....	1
<i>Onychomys</i> sp.....	Grasshopper mouse.....	1
<i>Peromyscus leucopus</i> .....	White-footed mouse.....	24

## RODENTIA—continued

## Cricetidae—Continued.

Number

<i>Sigmodon hispidus</i> .....	Cotton rat.....	6
<i>Synaptomys cooperi</i> .....	Lemming mouse.....	1
<i>Zapus hudsonius</i> .....	Jumping mouse.....	1

## Rhizomyidae:

<i>Nyctocleptes sumatrensis</i> .....	Bamboo rat.....	1
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## Muridae:

<i>Rattus norvegicus (albino)</i> .....	White rat.....	2
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## Hystriidae:

<i>Acanthion brachyurum</i> .....	Malay porcupine.....	5
<i>Atherurus africana</i> .....	West African brush-tailed porcupine.	2
<i>Hystrix galeata</i> .....	East African porcupine.....	2
<i>Thecurus sumatrae</i> .....	Brush-tailed porcupine.....	1

## Myocastoridae:

<i>Myocastor coypu</i> .....	Nutria.....	11
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## Capromyidae:

<i>Capromys pilorides</i> .....	Hutia.....	2
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## Cuniculidae:

<i>Cuniculus paca virgatus</i> .....	Central American paca.....	2
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## Dasyproctidae:

<i>Dasyprocta croconota prymnolopha</i> .....	Agouti.....	2
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## Chinchillidae:

<i>Lagostomus trichodactylus</i> .....	Viscacha.....	2
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## Caviidae:

<i>Cavia porcellus</i> .....	Domestic guinea pig.....	25
<i>Cavia porcellus</i> .....	Domestic guinea pig (angora breed).....	2
<i>Dolichotis magellanica</i> .....	Patagonian cavy.....	7
<i>Pediolagus salinicola</i> .....	Dwarf cavy.....	3

## Hydrochoeridae:

<i>Hydrochoerus hydrochoerus</i> .....	Capybara.....	2
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## LAGOMORPHA

## Leporidae:

<i>Oryctolagus cuniculus</i> .....	Domestic rabbit.....	7
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## ARTIODACTYLA

## Bovidae:

<i>Ammotragus lervia</i> .....	Aoudad.....	15
<i>Anoa depressicornis</i> .....	Anoa.....	2
<i>Bibos gaurus</i> .....	Gaur.....	2
<i>Bison bison</i> .....	{ American bison.....	19
	{ Albino bison.....	1
<i>Bos frontalis</i> .....	Gayal.....	4
<i>Bos indicus</i> .....	Zebu.....	5
<i>Boselaphus tragocamelus</i> .....	Nilgai.....	1
<i>Bubalus bubalis</i> .....	Indian buffalo.....	1
<i>Connochaetes gnu</i> .....	White-tailed gnu.....	2
<i>Connochaetes taurinus albojubatus</i> .....	White-bearded gnu.....	2
<i>Hemitragus jemlahicus</i> .....	Tahr.....	4
<i>Onotragus lechae</i> .....	Lechae antelope.....	1
<i>Oryx beisa annectens</i> .....	Ibean beisa oryx.....	2
<i>Ovis europaeus</i> .....	Mouflon.....	3
<i>Poephagus grunniens</i> .....	Yak.....	4



## ARTIODACTYLA—continued

Bovidae—Continued.		Number
<i>Pseudois nahura</i> .....	Bharal or blue sheep.....	4
<i>Synceros coffer</i> .....	African buffalo.....	2
<i>Taurotragus oryx</i> .....	Eland.....	4
Cervidae:		
<i>Axis axis</i> .....	Axis deer.....	15
<i>Cervus canadensis</i> .....	Wapiti.....	2
<i>Cervus duvaucelii</i> .....	Barasingha deer.....	3
<i>Cervus elaphus</i> .....	European red deer.....	17
<i>Dama dama</i> .....	{ Brown fallow deer.....	12
	{ White fallow deer.....	16
<i>Muntiacus muntjak</i> .....	Rib-faced or barking deer.....	1
<i>Muntiacus sinensis</i> .....	Chinese rib-faced deer.....	2
<i>Odocoileus costaricensis</i> .....	Costa Rican deer.....	1
<i>Odocoileus virginianus</i> .....	Virginia deer.....	2
<i>Rusa moluccensis</i> .....	Molucca deer.....	1
<i>Sika nippon</i> .....	Japanese deer.....	7
Tragulidae:		
<i>Tragulus javanicus</i> .....	Javan mouse deer.....	1
Giraffidae:		
<i>Giraffa camelopardalis</i> .....	Nubian giraffe.....	4
<i>Giraffa reticulata</i> .....	Reticulated giraffe.....	2
Camelidae:		
<i>Lama glama</i> .....	Llama.....	4
<i>Lama huanacus</i> .....	Guanaco.....	3
<i>Lama pacos</i> .....	Alpaca.....	2
Tayassuidae:		
<i>Pecari angulatus</i> .....	Collared peccary.....	4
<i>Tayassu pecari</i> .....	White-lipped peccary.....	2
Suidae:		
<i>Babirusa alfurus</i> .....	Babirusa.....	3
<i>Hylochoerus meinertzhageni</i> .....	Forest hog.....	1
<i>Phacochoerus aethiopicus massaicus</i> .....	East African wart hog.....	3
<i>Potamochoerus porcus keniae</i> .....	White-faced bush pig.....	1
<i>Sus scrofa</i> .....	European wild boar.....	1
Hippopotamidae:		
<i>Choeropsis liberiensis</i> .....	Pigmy hippopotamus.....	2
<i>Hippopotamus amphibius</i> .....	Hippopotamus.....	2
PERISSODACTYLA		
Equidae:		
<i>Equus grevyi</i> .....	Grevy's zebra.....	1
<i>Equus grevyi-asinus</i> .....	Zebra-ass hybrid.....	1
<i>Equus grevyi-caballus</i> .....	Zebra-horse hybrid.....	1
<i>Equus kiang</i> .....	Asiatic wild ass or kiang.....	2
<i>Equus przewalskii</i> .....	Mongolian wild horse.....	3
<i>Equus quagga chapmani</i> .....	Chapman's zebra.....	8
<i>Equus zebra</i> .....	Mountain zebra.....	2
Tapiridae:		
<i>Acrocodia indica</i> .....	Asiatic tapir.....	1
<i>Tapirella bairdii</i> .....	Central American tapir.....	1
<i>Tapirus terrestris</i> .....	South American tapir.....	2
Rhinocerotidae:		
<i>Diceros bicornis</i> .....	Black rhinoceros.....	1

## PROBOSCIDEA

		Number
Elephantidae:		
<i>Elephas sumatranus</i> .....	Sumatran elephant.....	1
<i>Loxodonta africana oxyotis</i> .....	African elephant.....	1

## EDENTATA

Choloepodidae:		
<i>Choloepus didactylus</i> .....	Two-toed sloth.....	2
Dasypodidae:		
<i>Dasypus novemcinctus</i> .....	Nine-banded armadillo.....	3
<i>Euphractus sexcinctus</i> .....	Six-banded armadillo.....	1
Myrmecophagidae:		
<i>Myrmecophaga jubata</i> .....	Giant anteater.....	1

## BIRDS

## STRUTHIONIFORMES

Struthionidae:		
<i>Struthio camelus</i> .....	South African ostrich.....	1

## RHEIFORMES

Rheidae:		
<i>Rhea americana</i> .....	{ Common rhea or nandu.....	7
	{ White rhea.....	3

## CASUARIIFORMES

Casuariidae:		
<i>Casuarius bennetti</i> .....	Bennett's cassowary.....	1
<i>Casuarius</i> sp.....	cassowary.....	1
<i>Casuarius</i> sp.....	cassowary.....	1
<i>Casuarius unappendiculatus</i> .....	Single wattled cassowary.....	1

Dromiceidae:		
<i>Dromiceius novaehollandiae</i> .....	Common emu.....	2

## SPHENISCIFORMES

Spheniscidae:		
<i>Spheniscus demersus</i> .....	Jackass penguin.....	6

## PELECANIFORMES

Pelecanidae:		
<i>Pelecanus californicus</i> .....	California brown pelican.....	2
<i>Pelecanus conspicillatus</i> .....	Australian pelican.....	1
<i>Pelecanus erythrorhynchos</i> .....	American white pelican.....	5
<i>Pelecanus erythrorhynchos</i> × <i>P. occidentalis</i> .....	American white and brown pelican (hybrid).....	1
<i>Pelecanus occidentalis</i> .....	Brown pelican.....	2
<i>Pelecanus onocrotalus</i> .....	European pelican.....	2
<i>Pelecanus roseus</i> .....	Rose-colored pelican.....	2

Sulidae:		
<i>Morus bassanus</i> .....	Gannet.....	1
<i>Sula granti</i> .....	Blue-footed booby.....	1

Phalacrocoracidae:		
<i>Phalacrocorax auritus albociliatus</i> .....	Farallon cormorant.....	2
<i>Phalacrocorax auritus floridanus</i> .....	Florida cormorant.....	1

## PELECANIFORMES—continued

Anhingidae:		Number
<i>Anhinga anhinga</i> .....	Anhinga.....	1
Fregatidae:		
<i>Fregata ariel</i> .....	Lesser frigate bird.....	2

## CICONIIFORMES

Ardeidae:		
<i>Ardea herodias</i> .....	Great blue heron.....	1
<i>Ardea-herodias</i> × <i>A. occidentalis</i> .....	Heron hybrid.....	1
<i>Ardea occidentalis</i> .....	Great white heron.....	1
<i>Botaurus lentiginosus</i> .....	American bittern.....	1
<i>Casmerodius albus egretta</i> .....	American egret.....	1
<i>Egretta thula</i> .....	Snowy egret.....	5
<i>Notophox novaehollandiae</i> .....	White-faced heron.....	1
<i>Nycticorax nycticorax naevius</i> .....	Black-crowned night heron.....	6
Cochleariidae:		
<i>Cochlearius cochlearius</i> .....	Boatbill heron.....	3
Scopidae:		
<i>Scopus umbretta</i> .....	Hammerhead.....	1
Ciconiidae:		
<i>Dissoura episcopus</i> .....	Woolly-necked stork.....	1
<i>Ephippiorhynchus senegalensis</i> .....	Saddle-billed stork.....	1
<i>Euxenura galatea</i> .....	Maguari stork.....	3
<i>Ibis cinereus</i> .....	Malay stork.....	2
<i>Jabiru mycteria</i> .....	Jabiru.....	2
<i>Leptoptilus crumeniferus</i> .....	Marabou.....	1
<i>Leptoptilus dubius</i> .....	Indian adjutant.....	1
<i>Leptoptilus javanicus</i> .....	Lesser adjutant.....	2
<i>Mycteria americana</i> .....	Wood ibis.....	1
Threskiornithidae:		
<i>Ajaia ajaja</i> .....	Roseate spoonbill.....	1
<i>Guara alba</i> .....	White ibis.....	3
<i>Guara alba</i> × <i>G. rubra</i> .....	Hybrid ibis (scarlet and white).....	1
<i>Guara rubra</i> .....	Scarlet ibis.....	2
<i>Phimosus infuscatus</i> .....	Dusky ibis.....	1
<i>Threskiornis aethiopica</i> .....	Sacred ibis.....	1
<i>Threskiornis melanocephala</i> .....	Black-headed ibis.....	2
<i>Threskiornis spinicollis</i> .....	Straw-necked ibis.....	2
Phoenicopteridae:		
<i>Phoenicopus chilensis</i> .....	Chilean flamingo.....	21

## ANSERIFORMES

Anhimidae:		
<i>Chaunacristata</i> .....	Crested screamer.....	10
Anatidae:		
<i>Aix sponsa</i> .....	Wood duck.....	17
<i>Alopochen aegyptiacus</i> .....	Egyptian goose.....	2
<i>Anas brasiliensis</i> .....	Brazilian teal.....	2
<i>Anas domestica</i> .....	Pekin duck.....	10
<i>Anas platyrhynchos</i> .....	Mallard duck.....	45
<i>Anas rubripes</i> .....	Black or dusty mallard.....	2
<i>Anser albifrons</i> .....	American white-fronted goose.....	4
<i>Branta bernicla</i> .....	Brant.....	2
<i>Branta canadensis</i> .....	Canada goose.....	6

## ANSERIFORMES—continued

## Anatidae—Continued.

Number

<i>Branta canadensis minima</i> .....	Cackling goose.....	1
<i>Branta canadensis occidentalis</i> .....	White-cheeked goose.....	15
<i>Branta leucopsis</i> .....	Barnacle goose.....	1
<i>Cairina moschata</i> .....	Muscovy duck.....	2
<i>Casarca variegata</i> .....	Paradise duck.....	1
<i>Cereopsis novaehollandiae</i> .....	Cereopsis or Cape Barren goose.....	1
<i>Chen atlantica</i> .....	Snow goose.....	5
<i>Chen caerulescens</i> .....	Blue goose.....	4
<i>Chloephaga poliocephala</i> .....	Ashy-headed upland goose.....	2
<i>Coscoroba coscoroba</i> .....	Coscoroba.....	5
<i>Cygnopsis cygnoides</i> .....	Chinese goose.....	1
<i>Cygnus columbianus</i> .....	Whistling swan.....	3
<i>Cygnus melancoriphus</i> .....	Black-necked swan.....	11
<i>Cygnus olor</i> .....	Mute swan.....	2
<i>Dafila acuta</i> .....	Pintail.....	1
<i>Dafila spinicauda</i> .....	Chilean pintail.....	1
<i>Dendrocygna arborea</i> .....	Black-billed duck.....	3
<i>Dendrocygna autumnalis</i> .....	Black-bellied tree duck.....	2
<i>Dendrocygna viduata</i> .....	White-faced tree duck.....	5
<i>Mareca americana</i> .....	Bald pate.....	1
<i>Philacte canagica</i> .....	Emperor goose.....	4
<i>Plectropterus gambensis</i> .....	Spur-winged goose.....	1

## FALCONIFORMES

## Cathartidae:

<i>Cathartes aura</i> .....	Turkey vulture.....	3
<i>Cathartes aura</i> × <i>Coragyps atratus</i> .....	Black vulture and turkey vulture hybrid.....	1
<i>Coragyps atratus</i> .....	Black vulture.....	1
<i>Gymnogyps californianus</i> .....	California condor.....	3
<i>Sarcoramphus papa</i> .....	King vulture.....	2
<i>Vultur gryphus</i> .....	South American condor.....	3

## Accipitridae:

<i>Accipiter cooperi</i> .....	Cooper's hawk.....	1
<i>Aegypius monachus</i> .....	Cinereous vulture.....	1
<i>Aquila chrysaetos</i> .....	Golden eagle.....	1
<i>Buteo borealis</i> .....	Red-tailed hawk.....	3
<i>Buteo galapagoensis</i> .....	Galápagos hawk.....	1
<i>Buteo lineatus</i> .....	Red-shouldered hawk.....	8
<i>Buteo melanoleucus</i> .....	South American buzzard eagle.....	2
<i>Buteo swainsoni</i> .....	Swainson's hawk.....	2
<i>Gypaetus barbatus grandis</i> .....	Lammergeyer.....	1
<i>Gyps rueppelli</i> .....	Ruppell's vulture.....	1
<i>Haliaeetus leucocephalus</i> .....	Bald eagle.....	13
<i>Haliaeetus leucocephalus alasconus</i> .....	Alaskan bald eagle.....	2
<i>Haliastur indus</i> .....	Brahminy kite.....	3
<i>Harpia harpya</i> .....	Harpy eagle.....	1
<i>Milvago chimango</i> .....	Chimango.....	2
<i>Milvus migrans</i> .....	Yellow-billed kite.....	1
<i>Pandion haliaetus carolinensis</i> .....	Osprey or fish hawk.....	3
<i>Torgos tracheliotus</i> .....	African eared vulture.....	1
<i>Uroaetus audax</i> .....	Wedge-tailed eagle.....	1



## FALCONIFORMES—continued

Falconidae:		Number
<i>Daptrius americanus</i> .....	Carancho.....	3
<i>Falco sparverius</i> .....	Sparrow hawk.....	3
<i>Polyborus cheriway</i> .....	Audubon's caracara.....	2
<i>Polyborus plancus</i> .....	South American caracara.....	1

## GALLIFORMES

Megapodiidae:		
<i>Alectura lathamii</i> .....	Australian brush turkey.....	2
<i>Leipoa ocellata</i> .....	Mallee fowl.....	1
<i>Megapodius freycineti</i> .....	Molucca megapode.....	1
Cracidae:		
<i>Craz rubra</i> .....	Panama curassow.....	1
<i>Craz sclateri</i> .....	Sclater's curassow.....	4
<i>Mitu mitu</i> .....	Razor-billed curassow.....	3
<i>Mitu salvini</i> .....	Salvin's curassow.....	1
Phasianidae:		
<i>Argusianus argus</i> .....	Argus pheasant.....	3
<i>Calopezus elegans</i> .....	Crested tinamou or martineta.....	23
<i>Catreus wallichii</i> .....	Cheer pheasant.....	1
<i>Chrysolophus amherstiae</i> .....	Lady Amherst's pheasant.....	1
<i>Chrysolophus pictus</i> .....	Golden pheasant.....	5
<i>Coturnix coturnix</i> .....	Migratory quail.....	21
<i>Excalfactoria chinensis</i> .....	Blue-breasted button quail.....	7
<i>Gallus</i> sp. $\times$ <i>Numida galeata</i> .....	Chicken and guinea fowl hybrid.....	2
<i>Gennaeus lineatus</i> .....	Lineated pheasant.....	1
<i>Gennaeus nycthemerus</i> .....	Silver pheasant.....	1
<i>Hierophasis swinhoii</i> .....	Swinhoe's pheasant.....	1
<i>Lophophorus impeyanus</i> .....	Himalayan impeyan pheasant.....	1
<i>Lophura rubra</i> .....	Malayan fire-back pheasant.....	1
<i>Nothura maculosa</i> .....	Spotted tinamou.....	18
<i>Pavo cristatus</i> .....	Peafowl.....	6
<i>Pavo muticus</i> .....	Green peafowl.....	2
<i>Phasianus torquatus</i> .....	{ Ring-neck pheasant.....	1
	{ White ring-necked pheasant.....	2
<i>Phasianus torquatus formosanus</i> .....	Formosan ring-necked pheasant.....	1
<i>Phasianus versicolor</i> .....	Green Japanese pheasant.....	1
<i>Polyplectron napoleonis</i> .....	Palawan peacock pheasant.....	2
<i>Syrnoticus reevesi</i> .....	Reeves' pheasant.....	1

## GRUIFORMES

Gruidae:		
<i>Anthropoides virgo</i> .....	Demoiselle crane.....	8
<i>Balearica pavonina</i> .....	West African crowned crane.....	1
<i>Balearica regulorum gibbericeps</i> .....	East African crowned crane.....	1
<i>Grus canadensis canadensis</i> .....	Little brown crane.....	1
<i>Grus canadensis tabida</i> .....	Sandhill crane.....	1
<i>Grus leucauchen</i> .....	White-naped crane.....	1
<i>Grus leucogeranus</i> .....	Siberian crane.....	2
Psophiidae:		
<i>Psophia crepitans</i> .....	Gray-backed trumpeter.....	1
Rallidae:		
<i>Gallinula chloropus cachinnans</i> .....	Florida gallinule.....	2
<i>Gallinula chloropus orientalis</i> .....	Sumatran gallinule.....	3

## GRUIFORMES—continued

## Rallidae—Continued.

Number

<i>Limnocorax flavirostra</i> .....	African black rail.....	2
<i>Porphyrio poliocephalus</i> .....	Gray-headed porphyrio.....	2
<i>Rallus philippensis australis</i> .....	Australian rail.....	1

## Eurypygidæ:

<i>Eurypyga helias</i> .....	Sun bittern.....	2
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## Cariamidae:

<i>Cariama cristata</i> .....	Cariama or seriama.....	2
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## Otididae:

<i>Otis cafra</i> .....	Denham's bustard.....	1
<i>Otis caffa jacksoni</i> .....	Jackson's bustard.....	1

## CHARADRIIFORMES

## Haematopodidae:

<i>Haematopus ostralegus</i> .....	European oyster catcher.....	2
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## Charadriidae:

<i>Bedonopterus chilensis</i> .....	Chilean lapwing.....	2
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## Scolopacidae:

<i>Philomachus pugnax</i> .....	Ruff.....	1
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## Laridae:

<i>Larus argentatus</i> .....	Herring gull.....	1
<i>Larus delawarensis</i> .....	Ring-billed gull.....	1
<i>Larus glaucescens</i> .....	Glaucous-winged gull.....	1
<i>Larus novaehollandiae</i> .....	Silver gull.....	24

## COLUMBIFORMES

## Columbidae:

<i>Caloenas nicobarica</i> .....	Nicobar pigeon.....	5
<i>Chalcophaps indica</i> .....	Emerald dove.....	1
<i>Columba livia</i> (domestic).....	Archangel pigeon.....	2
<i>Columba livia</i> (domestic).....	Fan-tailed pigeon.....	1
<i>Columba maculosa</i> .....	Spot-winged pigeon.....	1
<i>Columba palumbus</i> .....	Wood pigeon.....	1
<i>Columba picazuro</i> .....	Picazuro pigeon.....	2
<i>Dendrophassa vernans griseicapilla</i> .....	Sumatran fruit pigeon.....	4
<i>Ducula aenea</i> .....	Green imperial pigeon.....	1
<i>Eutereron pulchella</i> .....	Purple-capped fruit dove.....	1
<i>Gallicolumba luzonica</i> .....	Bleeding heart dove.....	5
<i>Goura cristata</i> .....	Sc Slater's crowned pigeon.....	5
<i>Goura victoria</i> .....	Victoria crowned pigeon.....	3
<i>Lamprotreron jambu</i> .....	Pink-headed fruit pigeon.....	1
<i>Leptotila rufaxilla</i> .....	Scaled pigeon.....	2
<i>Muscadivores paulina</i> .....	Celebian imperial pigeon.....	2
<i>Myristicivora bicolor</i> .....	Pied imperial pigeon.....	2
<i>Streptopelia chinensis</i> .....	Asiatic collared dove.....	26
<i>Streptopelia risoria</i> .....	Ring-necked dove.....	4
<i>Turtur risorius</i> .....	Turtle dove.....	2

## PSITTACIFORMES

## Psittacidae:

<i>Agapornis</i> sp.....	Red-headed lovebird.....	1
<i>Agapornis lilianae</i> .....	Nyassa lovebird.....	3
<i>Amazona aestiva</i> .....	Amazon or blue-fronted parrot.....	3
<i>Amazona albifrons</i> .....	White-fronted parrot.....	1

## PSITTACIFORMES—continued

## Psittacidae—Continued.

## Number

<i>Amazona amazonica</i> .....	Orange-winged parrot.....	2
<i>Amazona arausiaca</i> .....	Boquet's parrot.....	1
<i>Amazona auropalliata</i> .....	Yellow-naped parrot.....	9
<i>Amazona festiva</i> .....	Festive parrot.....	1
<i>Amazona leucocephala</i> .....	Cuban parrot.....	3
<i>Amazona ochrocephala</i> .....	Yellow-head parrot.....	3
<i>Amazona ochroptera</i> .....	Yellow-shouldered parrot.....	3
<i>Amazona oratrix</i> .....	Double yellow-head parrot.....	7
<i>Amazona viridigenalis</i> .....	Red-crowned parrot.....	1
<i>Anodorhynchus hyacinthinus</i> .....	Hyacinthine macaw.....	1
<i>Ara ararauna</i> .....	Yellow and blue macaw.....	1
<i>Ara chloroptera</i> .....	Red and blue macaw.....	1
<i>Ara macao</i> .....	Red, blue, and yellow macaw.....	2
<i>Ara macavanua-manilata</i> .....	Illiger's macaw.....	2
<i>Ara militaria</i> .....	Mexican green macaw.....	1
<i>Ara severa</i> .....	Severe macaw.....	1
<i>Aratinga euops</i> .....	Cuban conure.....	1
<i>Brotogeris jugularis</i> .....	Tovi paroquet.....	3
<i>Calyptorhynchus magnificus</i> .....	Banksian cockatoo.....	1
<i>Coracopsis nigra</i> .....	Lesser vasa parrot.....	1
<i>Cyanopsittacus spixi</i> .....	Spix's macaw.....	2
<i>Domicella flavopalliata</i> .....	Red lory.....	3
<i>Eclectus pectoralis</i> .....	Eclectus parrot.....	2
<i>Eolophus roseicapillus</i> .....	Roseate cockatoo.....	1
<i>Eos rubra</i> .....	Red lory.....	1
<i>Eupsittula aurea</i> .....	Golden-crowned paroquet.....	1
<i>Eupsittula canicularis</i> .....	Petz paroquet.....	1
<i>Kakatoe alba</i> .....	White cockatoo.....	2
<i>Kakatoe citrinocristata</i> .....	Orange-crested cockatoo.....	2
<i>Kakatoe galerita</i> .....	Large sulphur-crested cockatoo.....	4
<i>Kakatoe leadbeateri</i> .....	Leadbeaters' cockatoo.....	2
<i>Kakatoe moluccensis</i> .....	Great red-crested cockatoo.....	1
<i>Kakatoe sulphurea</i> .....	Lesser sulphur-crested cockatoo.....	5
<i>Kakatoe tenuirostris</i> .....	Slender-billed cockatoo.....	1
<i>Lorius domicella</i> .....	Rajah lory.....	2
<i>Lorius garrulus</i> .....	Lory.....	3
<i>Melopsittacus undulatus</i> .....	Grass parakeet.....	7
<i>Microglossus aterrimus</i> .....	Great black cockatoo.....	1
<i>Myopsitta monachus</i> .....	Quaker paroquet.....	1
<i>Nandayus nanday</i> .....	Nanday paroquet.....	1
<i>Nestor notabilis</i> .....	Kea.....	3
<i>Pionites xanthomera</i> .....	Amazonian caique.....	2
<i>Pionus menstruus</i> .....	Blue-headed parrot.....	1
<i>Psittacula eupatria</i> .....	Red-shouldered paroquet.....	4
<i>Psittacula krameri</i> .....	Kramer's paroquet.....	6
<i>Psittacula longicauda</i> .....	Long-tailed paroquet.....	1
<i>Psittacula nepalensis</i> .....	Nepalese paroquet.....	1
<i>Psittacus erithacus</i> .....	African gray parrot.....	1
<i>Tanygnathus megalorhynchus</i> .....	Great-billed parrot.....	1
<i>Tanygnathus muelleri</i> .....	Mueller parrot.....	1
<i>Trichoglossus cyanogrammus</i> .....	Green-naped lory.....	1
<i>Trichoglossus haematod</i> .....	Ceram lory.....	1

## CUCULIFORMES

		Number
Cuculidae:		
<i>Centropus sinensis</i> .....	Sumatran coucal.....	1
<i>Eudynamis scolopaceus</i> .....	Koel.....	1

## STRIGIFORMES

Strigidae:		
<i>Bubo virginianus</i> .....	Great horned owl.....	8
<i>Ketupa ketupu</i> .....	Malay fish owl.....	1
<i>Otus asio</i> .....	Screech owl.....	3
<i>Strix varia varia</i> .....	Barred owl.....	17

## CAPRIMULGIFORMES

Podargidae:		
<i>Podargus strigoides</i> .....	Tawny frogmouth.....	1

## CORACIIFORMES

Alcedinidae:		
<i>Dacelo gigas</i> .....	Kookaburra.....	2
<i>Halcyon pyrrhopygius</i> .....	Red-backed kingfisher.....	1
<i>Halcyon sanctus</i> .....	Sacred kingfisher.....	4
Momotidae:		
<i>Momotus lessoni</i> .....	Motmot.....	1
Bucerotidae:		
<i>Buceros rhinoceros</i> .....	Rhinoceros hornbill.....	2
<i>Bucorvus abyssinicus</i> .....	Abyssinian ground hornbill.....	2
<i>Dichoceros bicornis</i> .....	Concave casque hornbill.....	1
<i>Hydrocissa convexa</i> .....	Pied hornbill.....	1

## PICIFORMES

Capitonidae:		
<i>Thereiceryx zeylandicus</i> .....	Streaked barbet.....	2
Ramphastidae:		
<i>Ramphastos ariel</i> .....	Ariel toucan.....	1
<i>Ramphastos piscivorus</i> .....	Toco toucan.....	1

## PASSERIFORMES

Furnariidae:		
<i>Furnarius rufus</i> .....	Rufous ovenbird.....	20
Tyrannidae:		
<i>Pitangus sulphuratus</i> .....	Kiskadee flycatcher.....	1
Pittidae:		
<i>Pitta brachyura</i> .....	Indian pitta.....	1
Corvidae:		
<i>Aphelocoma californica woodhousei</i> .....	Woodhouse's jay.....	1
<i>Calocitta formosa</i> .....	Mexican magpie jay.....	1
<i>Cissa chinensis</i> .....	Chinese cissa.....	2
<i>Corvus albus</i> .....	White-breasted crow.....	2
<i>Corvus brachyrhynchos</i> .....	American crow.....	5
<i>Corvus coronoides</i> .....	Australian crow.....	1
<i>Corvus cryptoleucus</i> .....	White-necked raven.....	5
<i>Corvus insolens</i> .....	Indian crow.....	3
<i>Cyanocitta cristata</i> .....	Blue jay.....	2
<i>Cyanocorax cyanopogon</i> .....	White-naped jay.....	2
<i>Gymnorhina hypoleuca</i> .....	White-backed piping crow.....	3
<i>Pica nuttallii</i> .....	Yellow-billed magpie.....	2



## PASSERIFORMES—continued

Corvidae—Continued.		Number
<i>Pica pica hudsonia</i> .....	American magpie.....	2
<i>Urocissa occipitalis</i> .....	Red-billed blue magpie.....	1
<i>Xanthoura luzuosa guatemalensis</i> ...	Guatemalan green jay.....	1
Paradisoidae:		
<i>Ailuroedus crassirostris</i> .....	Australian catbird.....	1
<i>Eucorax comrii</i> .....	Curl-crested manucode.....	1
<i>Ptilonorhynchus violaceus</i> .....	Satin bowerbird.....	3
<i>Seleucidus niger</i> .....	12-wired bird of paradise.....	1
<i>Uranornis rubra</i> .....	Red bird of paradise.....	7
Pycnonotidae:		
<i>Molpastes haemorrhous</i> .....	Black-headed bulbul.....	1
<i>Otocompsa jocosus</i> .....	Red-eared bulbul.....	1
<i>Pycnonotus analis</i> .....	Yellow-vented bulbul.....	2
<i>Pycnonotus bidentatus</i> .....	Orange-spotted bulbul.....	3
<i>Rubigula dispar</i> .....	Red-throated bulbul.....	2
<i>Trachycomus zeylonicus</i> .....	Yellow-crowned bulbul.....	1
Turdidae:		
<i>Kittacincla malabarica</i> .....	Shama thrush.....	1
<i>Mesia argenteauris</i> .....	Silver-eared mesia.....	2
<i>Mimocichla rubripes</i> .....	Western red-legged thrush.....	4
<i>Myadestes unicolor</i> .....	Slate-colored solitaire.....	1
<i>Turdus grayi</i> .....	Bonaparte's thrush.....	1
Laniidae:		
<i>Lanius dorsalis</i> .....	Teita fiscal shrike.....	2
Sturnidae:		
<i>Aplonis chalybea</i> .....	Glossy apionis.....	2
<i>Cosmopsaris regius</i> .....	Splendid starling.....	3
<i>Creatophora cinerea</i> .....	Wattled starling.....	2
<i>Galeopsar salvadorii</i> .....	Crested starling.....	1
<i>Gracula religiosa</i> .....	Southern hill mynah.....	1
<i>Trupialis defilippi</i> .....	Military starling.....	16
Compsothlypidae:		
<i>Seiurus aurocapillus</i> .....	Ovenbird.....	1
Ploceidae:		
<i>Amadina fasciata</i> .....	Cut-throat finch.....	1
<i>Coliuspasser ardens</i> .....	Red-necked whydah.....	2
<i>Diatropura procne</i> .....	Giant whydah.....	6
<i>Erythrura prasina</i> .....	Long-tailed munia.....	3
<i>Munia maja</i> .....	White-headed munia.....	26
<i>Munia molucca</i> .....	Black-throated munia.....	6
<i>Munia oryzivora</i> .....	{ Java sparrow.....	1
	{ White Java sparrow.....	2
<i>Munia punctulatus</i> .....	Rice bird or nutmeg finch.....	9
<i>Ploceus baya</i> .....	Baya weaver.....	6
<i>Ploceus intermedius</i> .....	Black-checked weaver.....	2
<i>Ploceus rubiginosus</i> .....	Chestnut-breasted weaver.....	7
<i>Poephila acuticauda</i> .....	Long-tailed finch.....	7
<i>Poephila gouldiae</i> .....	Gouldian finch.....	3
<i>Quelea sanguinirostris intermedia</i> ...	Southern masked weaver finch.....	12
<i>Steganopleura bichenovii</i> .....	Banded finch.....	5
<i>Steganura paradisea</i> .....	Paradise whydah.....	7
<i>Taeniopygia castanotis</i> .....	Zebra finch.....	2

## PASSERIFORMES—continued

		<i>Number</i>
<b>Icteridae:</b>		
<i>Agelaius assimilis</i> .....	Cuban red-winged blackbird.....	5
<i>Gymnomystax mexicanus</i> .....	Giant oriole.....	2
<i>Icterus icterus</i> .....	Troupial.....	5
<i>Molothrus ater</i> .....	Cow bird.....	1
<i>Psomocolax oryzivora</i> .....	Rice grackle.....	1
<i>Xanthocephalus xanthocephalus</i> .....	Yellow-headed blackbird.....	4
<b>Thraupidae:</b>		
<i>Thraupis cana</i> .....	Blue tanager.....	2
<b>Fringillidae:</b>		
<i>Amandava amandava</i> .....	Strawberry finch.....	36
<i>Carduelis carduelis</i> .....	European goldfinch.....	1
<i>Fringilla montifringilla</i> .....	Brambling finch.....	1
<i>Melopyrrha nigra</i> .....	Cuban bullfinch.....	1
<i>Paroaria cucullata</i> .....	Brazilian cardinal.....	1
<i>Pheucticus tibialis</i> .....	Yellow grosbeak.....	1
<i>Richmondenia cardinalis cardinalis</i> .....	Eastern cardinal.....	2
<i>Serinus canarius</i> .....	Canary.....	1
<i>Sicalis minor</i> .....	Lesser yellow finch.....	6
<i>Sporophila aurita</i> .....	Hick's seed-eater.....	2
<i>Sporophila gutturalis</i> .....	Yellow-bellied seed-eater.....	2
<i>Uroloncha leucogastroides</i> .....	Society finch.....	1
<i>Volatinia jacarini</i> .....	Blue-black grassquit.....	1

## REPTILES

## LORICATA

## Crocodylidae:

<i>Alligator mississippiensis</i> .....	Alligator.....	17
<i>Alligator sinensis</i> .....	Chinese alligator.....	3
<i>Caiman latirostris</i> .....	Broad-snouted caiman.....	1
<i>Caiman sclerops</i> .....	Spectacled caiman.....	3
<i>Crocodylus acutus</i> .....	American crocodile.....	1
<i>Crocodylus cataphractus</i> .....	West African crocodile.....	1
<i>Crocodylus porosus</i> .....	Salt-water crocodile.....	1
<i>Osteolaemus tetraspis</i> .....	Broad-nosed crocodile.....	1
<i>Tomistoma schlegeli</i> .....	Malayan gavia.....	7

## SQUAMATA

## Agamidae:

<i>Acanthosaura armata</i> .....	Armed tree lizard.....	1
<i>Physignathus lesueurii</i> .....	Lesueur's water dragon.....	2

## Iguanidae:

<i>Anolis carolinensis</i> .....	False chameleon.....	14
<i>Anolis equestris</i> .....	Giant anolis.....	7
<i>Conolophus subcristatus</i> .....	Galápagos iguana.....	1
<i>Iguana iguana</i> .....	Iguana.....	1
<i>Leiocephalus cubensis</i> .....	Cuban curl-tailed lizard.....	1
<i>Phrynosoma cornutum</i> .....	Horned lizard.....	8
<i>Sceloporus magister</i> .....	Desert scaly lizard.....	1
<i>Sceloporus torquatus</i> .....	Scaly lizard.....	1
<i>Sceloporus undulatus</i> .....	Fence lizard.....	3

## Anguidae:

<i>Ophisaurus apus</i> .....	European glass snake.....	1
<i>Ophisaurus ventralis</i> .....	Glass snake.....	1

## SQUAMATA—continued

		Number
<b>Gerrhosauridae:</b>		
<i>Gerrhosaurus validus</i> .....	Robust plated lizard.....	1
<b>Helodermatidae:</b>		
<i>Heloderma horridum</i> .....	Mexican beaded lizard.....	2
<i>Heloderma suspectum</i> .....	Gila monster.....	8
<b>Teiidae:</b>		
<i>Tupinambis nigropunctatus</i> .....	Tegu lizard.....	2
<i>Tupinambis rufescens</i> .....	Red tegu lizard.....	1
<i>Tupinambis teguixin</i> .....	Yellow tegu lizard.....	13
<b>Scincidae:</b>		
<i>Egernia cunninghami</i> .....	Cunningham's skink.....	2
<i>Eumeces fasciatus</i> .....	Red-headed skink.....	1
<i>Tiliqua nigrolutea</i> .....	Mottled lizard.....	1
<i>Tiliqua scincoides</i> .....	Blue-tongued lizard.....	2
<b>Varanidae:</b>		
<i>Varanus griseus</i> .....	Gray monitor.....	1
<i>Varanus komodoensis</i> .....	Komodo dragon.....	1
<i>Varanus niloticus</i> .....	African monitor.....	1
<i>Varanus salvator</i> .....	Sumatran monitor.....	12

## OPHIDIA

<b>Boidae:</b>		
<i>Boa cookii</i> .....	Cook's tree boa.....	1
<i>Boa occidentalis</i> .....	Southern boa constrictor.....	2
<i>Constrictor constrictor</i> .....	Boa constrictor.....	6
<i>Constrictor imperator</i> .....	Emperor boa.....	2
<i>Epicrates cenchris</i> .....	Rainbow boa.....	10
<i>Epicrates crassus</i> .....	Salamanta.....	2
<i>Epicrates striatus</i> .....	Haitian boa.....	1
<i>Eryx johnei</i> .....	Indian sand boa.....	1
<i>Tropidophis melanurus</i> .....	Cuban boa.....	1
<b>Pythonidae:</b>		
<i>Python curtus</i> .....	Blood python.....	1
<i>Python molurus</i> .....	Indian rock python.....	3
<i>Python regius</i> .....	Ball python.....	1
<i>Python reticulatus</i> .....	Regal python.....	4
<i>Python sebae</i> .....	African rock python.....	3
<i>Python variegatus</i> .....	Carpet python.....	1
<b>Colubridae:</b>		
<i>Alsophis angulifer</i> .....	Jubo or culebra.....	6
<i>Boiga dendrophila</i> .....	Mangrove snake.....	1
<i>Cyclagras gigas</i> .....	Cobra-de-Paraguay.....	3
<i>Diadophis punctatus</i> .....	Ring-necked snake.....	1
<i>Drymarchon corais couperi</i> .....	Indigo snake.....	4
<i>Drymobius bifossatus</i> .....	Jararacussu do brejo.....	6
<i>Elaphe guttata</i> .....	Corn snake.....	4
	Night snake.....	1
	Indigo snake.....	1
<i>Elaphe obsoleta</i> .....	Pilot Snake.....	8
<i>Elaphe quadrivittata</i> .....	Chicken snake.....	2
<i>Elaphe vulpina</i> .....	Fox snake.....	1
<i>Heterodon contortrix</i> .....	Hog-nosed snake.....	2
<i>Hypsiglena ochrorhynchus</i> .....		1

## OPHIDIA—continued

## Colubridae—Continued.

Number

<i>Lampropeltis triangulum</i> .....	Milk snake.....	1
<i>Natrix</i> sp.....	Water snake.....	6
<i>Natrix cyclopion</i> .....	Water snake.....	2
<i>Philodryas schottii</i> .....	Parelheira.....	3
<i>Thamnophis ordinoides</i> .....	California garter snake.....	1
<i>Thamnophis sirtalis concinnus</i> .....	Pacific garter snake.....	6
<i>Thamnophis sirtalis sirtalis</i> .....	Garter snake.....	8
<i>Xendon merremii</i> .....	Boipeva.....	7

## Elapidae:

<i>Naja hannah</i> .....	King cobra.....	2
<i>Naja tripudians sumatrana</i> .....	Sumatran black-hooded cobra....	1
<i>Naja tripudians</i> (var.).....	Spectacled cobra.....	3
<i>Naja tripudians</i> (var.).....	Siamese black-hooded cobra....	3

## Crotalidae:

<i>Agkistrodon mokasen</i> .....	Copperhead snake.....	2
<i>Agkistrodon piscivorus</i> .....	Water moccasin.....	6
<i>Bothrops neuwiedii</i> .....	Maximilian's viper.....	2
<i>Crotalus adamanteus</i> .....	Florida diamond-backed rattle- snake.....	2
<i>Crotalus cinereus</i> .....	Texas rattlesnake.....	3
<i>Crotalus horridus</i> .....	Banded rattlesnake.....	3
<i>Crotalus oreganus</i> .....	Oregon rattlesnake.....	3
<i>Sistrurus catenatus catenatus</i> .....	Massasauga.....	12
<i>Sistrurus miliarius</i> .....	Pigmy rattlesnake.....	2

## Viperidae:

<i>Atheris chlorechis</i> .....	West African tree viper.....	2
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## TESTUDINATA

## Chelydridae:

<i>Batrachemys nasuta</i> .....	South American side-necked turtle.....	3
<i>Chelodina longicollis</i> .....	Australian snake-necked turtle..	4
<i>Chelys fimbriata</i> .....	Matamata turtle.....	1
<i>Hydraspis</i> sp.....	South American snake-necked turtle.....	4
<i>Hydromedusa tectifera</i> .....	South American snake-necked turtle.....	17

## Platysternidae:

<i>Platemys platycephala</i> .....	Flat-headed turtle.....	1
<i>Platysternum megacephalum</i> .....	Large-headed Chinese turtle....	2

## Pelomedusidae:

<i>Pelomedusa galeata</i> .....	Common African water tortoise..	2
<i>Podocnemis expansa</i> .....	South American river tortoise....	1

## Kinosternidae:

<i>Kinosternon</i> sp.....	Central American musk turtle....	4
<i>Kinosternon subrubrum</i> .....	Musk turtle.....	1

## Chelydridae:

<i>Chelydra serpentina</i> .....	Snapping turtle.....	2
<i>Macrochelys temminckii</i> .....	Alligator snapping turtle.....	1

## Testudinidae:

<i>Chrysemys picta</i> .....	Painted turtle.....	8
<i>Clemmys guttata</i> .....	Spotted turtle.....	2



## TESTUDINATA—continued

## Testudinidae—Continued.

Number

<i>Clemmys insculpta</i> .....	Wood tortoise.....	1
<i>Clemmys muhlenbergii</i> .....	Muhlenberg's tortoise.....	1
<i>Cyclemys amboinensis</i> .....	Kura kura box turtle.....	14
<i>Deirochelys reticularia</i> .....	Chicken tortoise.....	1
<i>Emys blandingii</i> .....	Blanding's turtle.....	1
<i>Gopherus polyphemus</i> .....	Gopher turtle.....	1
<i>Graptemys geographica</i> .....	Geographic turtle.....	3
<i>Malaclemmys centrata</i> .....	Diamond-back terrapin.....	7
<i>Pseudemys concinna</i> .....	Cooter.....	4
<i>Pseudemys decussata</i> .....	Haitian terrapin.....	1
<i>Pseudemys d'orbigny</i> .....	D'Orbigny's turtle.....	3
<i>Pseudemys elegans</i> .....	Cumberland terrapin.....	3
<i>Pseudemys floridana</i> .....	Florida terrapin.....	2
<i>Pseudemys ornata</i> .....	.....	2
<i>Pseudemys rubriventris</i> .....	Red-bellied turtle.....	1
<i>Pseudemys rugosus</i> .....	Cuban terrapin.....	1
<i>Terrapene carolina</i> .....	Box tortoise.....	6
<i>Testudo chilensis</i> .....	.....	25
<i>Testudo denticulata</i> .....	.....	10
<i>Testudo emys</i> .....	Sumatran land tortoise.....	1
<i>Testudo ephippium</i> .....	Duncan Island tortoise.....	2
<i>Testudo hoodensis</i> .....	Hood Island tortoise.....	3
<i>Testudo tornieri</i> .....	Soft-shelled land tortoise.....	4
<i>Testudo vicina</i> .....	Albemarle Island tortoise.....	1

## Trionychidae:

<i>Amyda ferox</i> .....	Soft-shelled turtle.....	7
<i>Trionyx cartilagineus</i> .....	Asiatic soft-shelled turtle.....	1

## AMPHIBIA

## CAUDATA

## Salamandridae:

<i>Triturus pyrrhogaster</i> .....	Red-bellied Japanese newt.....	2
<i>Triturus viridescens</i> .....	Common newt.....	2
<i>Triturus vulgaris</i> .....	Salamander.....	1

## Ambystomidae:

<i>Ambystoma tigrinum</i> .....	Tiger salamander.....	1
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## Amphiumidae:

<i>Amphiuma means</i> .....	Blind eel or Congo snake.....	2
<i>Amphiuma tridactylum</i> .....	Blind eel or Congo snake.....	1
<i>Megalobatrachus japonicus</i> .....	Giant salamander.....	1

## Cryptobranchidae:

<i>Cryptobranchus alleganiensis</i> .....	Hellbender.....	4
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## SALIENTIA

## Dendrobatidae:

<i>Atelopus</i> sp.....	Golden-striped frog.....	1
<i>Dendrobates auratus</i> .....	Arrow-poison frog.....	10

## Bufonidae:

<i>Bufo americanus</i> .....	Common American toad.....	2
<i>Bufo arenarum</i> .....	Argentine sand toad.....	1

## SALIENTIA—continued

Bufonidae—Continued.		Number
<i>Bufo empusus</i> .....	Sapo de concha.....	14
<i>Bufo marinus</i> .....	Marine toad.....	11
<i>Bufo peltoccephalus</i> .....	Cuban giant toad.....	6
Ceratophrydae:		
<i>Ceratophrys ornata</i> .....	Horned frog.....	3
<i>Ceratophrys varius</i> .....	Horned frog.....	4
Hylidae:		
<i>Hyla caerulea</i> .....	Australian tree frog.....	3
<i>Hyla cinerea</i> .....	Florida tree frog.....	1
<i>Hyla septentrionalis</i> .....	Cuban tree frog.....	1
Pipidae:		
<i>Calyptocephalus gayii</i> .....	Chilean aquatic frog.....	2
<i>Pipa americana</i> .....	Surinam toad.....	13
Ranidae:		
<i>Rana clamitans</i> .....	Green frog.....	3

## FISHES

<i>Acanthopthalmus kuhlii</i> .....	Banded loach.....	4
<i>Anguilla rostrata</i> .....	Common eel.....	3
<i>Anostomus anostomus</i> .....		1
<i>Barbus laterstrigga</i> .....		1
<i>Barbus partipentazona</i> .....	Red-finned barb.....	10
<i>Carnegiella strigata</i> .....	Striped hatchet fish.....	2
<i>Corydoras melanistius</i> .....	Armored catfish.....	1
<i>Eleotrophorus electricus</i> .....	Electric eel.....	5
<i>Hemigrammus unilineatus</i> .....		1
<i>Hemiodus</i> sp.....		1
<i>Hyphessobrycon innesi</i> .....	Neon tetra fish.....	12
<i>Hyphessobrycon</i> sp.....		1
<i>Kryptopterus bicirrhus</i> .....	Glass catfish.....	2
<i>Lebistes reticulatus</i> .....	Guppy.....	12
<i>Lepidosiren paradoxa</i> .....	South American lungfish.....	3
<i>Leporinus fasciata</i> .....	Leopard fish.....	1
<i>Monocirrhus polyacanthus</i> .....	Leaf fish.....	4
<i>Pantodon buchholzi</i> .....	Butterfly fish.....	4
<i>Platyoeilus maculatus</i> .....	Goldplaties.....	2
<i>Pristella riddlei</i> .....		1
<i>Protopterus annectens</i> .....	African lungfish.....	2
<i>Serrasalmus ternetzi</i> .....	Piranha or cannibal fish.....	1
<i>Tilapia</i> sp.....	Mouth-breeding fish.....	3
<i>Trichogaster leeri</i> .....	3-spot gourami.....	1
<i>Xiphophorus helleri</i> .....	Sword-tail.....	1

## ARACHNIDS

<i>Eurypelma</i> sp.....	Tarantula.....	4
<i>Latrodectus mactans</i> .....	Black widow spider.....	1

## INSECTS

<i>Blabera</i> sp.....	Giant cockroach.....	25
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## MOLLUSKS

Number

<i>Achatina variegata</i> -----	Giant land snail-----	3
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## CRUSTACEANS

<i>Coenobita clypeatus</i> -----	Land hermit crab-----	9
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Respectfully submitted.

W. M. MANN, *Director.*

Dr. C. G. ABBOT,  
*Secretary, Smithsonian Institution.*

## APPENDIX 8

### REPORT ON THE ASTROPHYSICAL OBSERVATORY

SIR: I have the honor to submit the following report on the activities of the Astrophysical Observatory for the fiscal year ended June 30, 1939:

#### WORK AT WASHINGTON

##### RECOMPUTATIONS

The main business was the recomputation of all solar-constant values since 1923, under the direction of L. B. Aldrich, referred to in the two preceding reports. By the end of the fiscal year new results had been computed for all available days since 1923 at all stations. But the final corrections and general discussion still remained to be done. Corrections had been applied, however, for sky-brightness, ozone absorption, and all other conditions for the results of Montezuma and St. Katherine for the years 1933 to 1939, so that these values are definitive, except for the final reduction to a uniform scale at all stations. This is to be decided upon when all the work is done. It is expected that the entire recomputation will be wholly completed by October 1939. A publication of the revised work will afterward be made, funds for which have been generously provided by John A. Roebling.

The improvement in accuracy resulting from the revision is very apparent when comparing Montezuma and St. Katherine daily results of the years 1933 to 1939, now practically final. Part of this improvement results from the elimination of the radiation received by pyrhelimeters from the sky near the sun. We had always hitherto treated this as negligible, but it was found to be a quantity ranging up to about 0.5 percent and variable with the haziness prevailing. A method was devised and applied for determining this sky radiation. Its elimination from all the pyrhelimetric observations since 1923 has been a considerable task, and has prevented the completion of the revision of the solar-constant work by January 1939 as was stated in last year's report to be expected.

##### A CONTROVERSY

The Director spent much time in preparing a suitable reply to an article by Dr. M. M. Paranpje (*Quart. Journ. Roy. Met. Soc.*, July 1938). That author concluded:



The variations observed in the solar constant by the Astrophysical Observatory of the Smithsonian Institute during the last 30 years are mainly due to the defects in the methods of determining the solar constant. If this conclusion is accepted the subsequent work based on the supposed variability of the solar constant is not valid.

Dr. Paranjpe's paper was read at a meeting of the Royal Meteorological Society and favorably received and commented upon by several of the principal meteorologists of Great Britain.

Dr. Abbot's reply (Quart. Journ. Roy. Met. Soc., April 1939) is abstracted as follows:

The author cites five recent papers containing many evidences of solar change ignored by critics. Chief among them, and in the author's opinion unanswerable, are evidences that day to day solar changes profoundly influence temperatures. Between 1924 and 1935 were found 320 dates, the beginnings of sequences of observed rise or of fall of solar radiation. The average march of departures from normal temperatures in four widely separated cities shows opposite trends for 16 days following, respectively, these sequences of rising and falling solar radiation. The separation of temperatures thus produced reaches from  $10^{\circ}$  to  $25^{\circ}$  F. Similar curves of temperature departure are found, on the average, in the years 1924 to 1930, to those found in the years 1931 to 1935. Selecting 46 cases of especially large solar changes observed, the temperature effects which followed were in the same phase but about twice as large as usual. A crucial test is given wherein correlation coefficients are computed for the march of temperatures for 16 days *after* and for 16 days *before* observed solar changes, as between rising and falling sequences of solar variation. The correlation values are respectively: After,  $-54.3 \pm 4.9$  percent; before,  $+11.1 \pm 6.0$  percent. The first is 11 times its probable error and therefore significant, the second less than twice its probable error and hence meaningless.

From these studies it appears that day-to-day changes averaging 0.7 percent in solar radiation are presumably real and competent to produce major changes of  $10^{\circ}$  to  $25^{\circ}$  F. in temperature in the temperate zone. Such changes may be conventionally represented by the repetition 18 times per year of the day-to-day sequence, 3, 6, 9, 12, 14, 12, 9, 6, 3 thousandths calorie in solar radiation.

The author demonstrates that correlation of day-to-day solar constant values from different observatories, as relied on by critics, is incompetent to refute the sun's important variability. For the author computes correlation coefficients for 110 days as between the best stations, Montezuma and St. Katherine, obtaining  $6 \pm 6$  percent. He then loads the values of each station simultaneously with five humps of sequences such as just numerically specified. The two stations are then certainly correlated, and carry assumed solar changes adequate to produce from  $10^{\circ}$  to  $25^{\circ}$  F. in temperature departures. The correlation coefficient now becomes  $18 \pm 6$  percent, an increase of 12 percent, far below what critics require as being evidential.

The author points out that multiplication of values, as in monthly means or in large groupings governed by magnitudes, may sufficiently reduce accidental errors to give trustworthy evidences of solar variation, and cites numerous cases of this sort not referred to by critics.

The author mentions various considerations constantly in his mind but overlooked by critics. He discusses the procedures used in holding the solar constant values to a fixed scale for long-range comparisons.

The author points out that critics' disparagement of solar variation by the tabular use of standard deviations proves nothing and is merely reasoning in a circle, since the increase of standard deviations may quite as well be caused by real increase in solar variation as by increase of experimental error. Similarly, increase of correlation coefficients between two stations may be due to increased solar variation rather than experimental interdependence as suggested by critics, for thereby the competitive effects of accidental error are made relatively less considerable.

The author explains in detail the discovery of 12 long periods in solar variation. Critics having claimed on the basis of an equation of Brunt's, that the author's periodicities have impossibly great amplitudes, the author tabulates these periodicities completely, and then synthesizes them for the years 1920 to 1934 and compares the synthetic curve with observed monthly mean values. With a total range of 2 percent, the synthesized periodicities reproduce the original observations to within an average deviation of 0.2 percent, hence periodicities cannot have excessive amplitudes as claimed.

The author reiterates his conviction that solar variation is the principal cause of weather changes, and that with annual expenditure of \$300,000 for solar observation, principal details of weather might be predicted all over the world from study of solar variation for two weeks in advance.

Since the publication of Abbot's reply the variations of solar radiation have been discussed from the standpoint of terrestrial magnetism by F. E. Dixon (Quart. Journ. Roy. Met. Soc., July 1939) who finds:

There is evidence of a connection between changes of magnetic activity and the regular rises and falls in the solar constant noted by Abbot. The changes are appreciable only on the first two days after alterations of the solar constant commence, and, hence, continue only as the solar constant is changing.

Dixon found in studying the averages for magnetic character figures for each month of the year, over a period of 12 years, that opposite changes of terrestrial magnetism occur, according as the solar constant begins to rise or to fall according to Smithsonian observations.

#### PUBLICATION

With N. M. McCandlish, the Director prepared a paper on "The Weekly Period in Washington Precipitation."<sup>1</sup> A discussion of the daily precipitation at Washington, 1924 to 1939, indicates a periodicity of 6 days 18 hours, or approximately one-fourth the period of the sun's rotation. The period is such that the day of maximum precipitation in the monthly averages comes one day of the week earlier on each successive month. Unexpected changes of phase by

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<sup>1</sup> Published shortly after the close of the fiscal year as Smithsonian Misc. Coll., vol. 98, No. 21.

one or two days occasionally occur. But the data were resolved into 15 series, averaging about 1 year in length each, when in each series from 2.5 to 8.5 times as much precipitation fell on the day of maximum as on the day of minimum expected precipitation.

#### NEW FIELD STATIONS

After a reconnaissance throughout southwestern New Mexico, A. F. Moore located a new solar-observing station on Burro Mountain, near Tyrone, N. Mex., approximately long.  $108^{\circ}33'$ , lat.  $32^{\circ}40'$ , alt. 8,000 ft. This station was made readily accessible to motor cars through the valued cooperation of the United States Forest Service. Water was developed about 2 miles down the road, and tanks are kept filled at the summit for gravity circulation. Telephone communication has also been established.

The observatory structures, comprising a tunnel and piers for instruments, bungalows for the observers' families, garages, and water tanks were built to specifications of Mr. Moore by Jack Heather, of Lordsburg.

The observing instruments formerly at Mount St. Katherine, and before that at Mount Brukkaros, were installed at the new Tyrone Station. Observations of the solar constant were begun there in January 1939.

As in old Mexico, the precipitation in southwestern New Mexico is almost altogether in the months July to September in normal years, and at Lordsburg averages only about 9 inches per year. We, therefore, hoped this new station would serve in a valuable supplementary way with our stations in California and Chile, where the months December to February are the worst, for continuous daily records. The past winter proved exceptional, as there was a snow-fall on Burro Mountain of 72 inches. No such great fall of snow, we are informed, has occurred there for 20 years before.

#### OTHER FIELD STATIONS

Solar-constant observing has been continued at Table Mountain, Calif., and Montezuma, Chile, as in previous years, on every favorable day. Usually about 75 to 80 percent of the days of the year are cloudless enough for observations to be made at these stations. Exceptionally deep snow fell on Table Mountain in this past winter, amounting to over 11 feet in all.

At John A. Roebling's suggestion, all three observing stations have been equipped with excellent concrete tennis courts, constructed with grants of funds by Mr. Roebling.

## STELLAR ENERGY SPECTRA

As noted in last year's report, W. H. Hoover set up apparatus in the 100-inch telescope building on Mount Wilson for measuring the distribution of energy in the spectra of the brighter stars. He observed on August 31 and on September 21 with considerable success.

The apparatus comprised 10 Christiansen filters adapted to select narrow regions of spectra ranging from  $0.345\mu$  in the ultraviolet to  $1.030\mu$  in the infrared. It was particularly suitable for observing the spectra of the blue and white stars which could not be well observed with the arrangements used by Abbot in 1923 and 1928. Hoover employed a thermoelectric element made by L. B. Clark of this Institution in connection with a highly sensitive reflecting galvanometer made by Hoover himself to observe the heat in the spectral regions selected by the filters. He calibrated the apparatus by observing the solar spectrum, whose distribution is known with considerable accuracy.

Owing to disturbances arising in the thermoelectric circuit, it was impossible to use the galvanometer at more than one-third its available sensitiveness. Yet Hoover read deflections as great as 20 millimeters in the spectrum of Vega.

Measurements were made in the spectra of five stars  $\alpha$  Aurigae,  $\alpha$  Cygni,  $\alpha$  Persei,  $\alpha$  Aquilae, and  $\alpha$  Lyrae, all but one of which agreed very closely with those obtained for the same stars by Abbot in 1928, except that Hoover's measurements extended to much shorter wave lengths than could be reached by Abbot. However, the results are still only provisional, and intended mainly to test whether the method can be used with advantage when, about the year 1941, the 200-inch telescope becomes available.

Our conclusion is very favorable. It is believed that the disturbances encountered in the thermoelectric circuit can be minimized; that the full sensitiveness of the galvanometer can then be used; that a diffraction grating can be ruled to throw 60 percent of the incident light into one spectrum, and can be used with a simple optical system to be more saving of light than the filters; that automatic photographic registration will be practicable; and, in short, that continuous automatically recorded stellar spectrum energy curves, probably at least 10 centimeters high at maximum, can be obtained for the brightest stars when the 200-inch telescope becomes available.

## PERSONNEL

Harlan H. Zodtner resigned from the service on October 31, 1938.

Hugh B. Freeman, formerly with us, was retransferred to the work from the National Advisory Committee for Aeronautics on August 1,



1938, succeeding Zodtner at Table Mountain. James H. Baden was employed as bolometric assistant on January 16, 1939. He reported at Montezuma in March 1939, vice Stanley C. Warner, who was transferred to Table Mountain after some weeks in Washington. Freeman relieved C. P. Butler at Montezuma in July 1939. Miss Nancy M. McCandlish was employed as special assistant to the Director under grant from John A. Roebling, beginning February 16, 1939.

Respectfully submitted.

C. G. ABBOT, *Director.*

The SECRETARY,

*Smithsonian Institution.*

## APPENDIX 9

### REPORT ON THE DIVISION OF RADIATION AND ORGANISMS

SIR: I have the honor to submit the following report on the activities of the Division of Radiation and Organisms during the year ended June 30, 1939.

On May 1, 1929, the Division of Radiation and Organisms was organized for the purpose of undertaking "those investigations of, or directly related to, living organisms wherein radiation enters as an important factor." This year marked the tenth anniversary of the Division. During these 10 years the Division has grown in its physical equipment and its personnel. Much of its research has been distinctly fundamental in nature, and the counsel of its members is being sought constantly on technical and research problems in the field of radiation as related to living organisms. Throughout this period most important financial aid has been given by the Research Corporation of New York.

During the past year the activities of the Division have been focused largely on problems dealing directly or indirectly with photosynthesis, factors influencing plant growth, and the stimulative action of ultra-violet radiation.

#### PHOTOSYNTHESIS

Work is being continued on the mechanics of photosynthesis. Experimental evidence has been obtained by Dr. McAlister which indicates the formation, during the process of photosynthesis and not before, of a material in relatively large quantities which combines with or absorbs carbon dioxide. The experimental evidence indicating the existence of this carbon dioxide-combining "intermediate" is the flow of a relatively large amount of carbon dioxide into the leaf after the light reaction is stopped, i. e., in darkness immediately following a high rate of photosynthesis. This "pick-up" is of an order of magnitude greater than any possible plant uptake due to solubility or other strictly physical processes. It occurs far too fast to be due to the action of a "buffer solution." Hence it appears to be due to a compound or "intermediate" that operates in the process of photosynthesis. That it is chlorophyllous in nature is suggested by the fact that the largest pick-up so far obtained is of the order of the

amount of chlorophyll present—molecule for molecule. That this “intermediate” is probably not free chlorophyll is suggested by experiments wherein the plant was subjected to high light in the absence of carbon dioxide for some time, and then carbon dioxide was suddenly admitted. No pick-up was here observed. Since no photosynthesis occurred in this treatment and no pick-up occurred, it is inferred that the “intermediate” is not formed under these conditions, but is formed during active photosynthesis and makes itself evident by a quick pick-up of carbon dioxide after a previous high rate of photosynthesis.

The apparatus used in these experiments was satisfactory for determining carbon dioxide concentrations below one-half percent. Dr. McAlister is reconstructing this equipment so that it will be suitable for experiments involving concentrations of carbon dioxide as high as 5 percent. With this improvement, he plans to continue his investigation to that of observing light saturation in intermittent illumination. Results from such experiments have an important bearing on all theories of photosynthesis.

A great number of automatic records have been obtained during the past year by Dr. Johnston on the recording spectrographic carbon dioxide apparatus. As a result of this work a number of fundamental changes have been made. Dr. McAlister has redesigned and Mr. Fillmen has rebuilt the spectrograph and constructed a new lamp housing for a new infrared emitter designed and made by Mr. Clark. The accuracy of measuring the photographically recorded galvanometer deflections has been increased greatly by superimposing the print of a coordinately ruled plate on the record paper before development. This procedure eliminates the necessity of correcting for changes in size of paper resulting from development. This improvement followed a suggestion made by Mr. Brydon.

Plants respire (give off carbon dioxide) both in darkness and during the process of photosynthesis in light and thus respiration apparently diminishes the intake of carbon dioxide during photosynthesis. Since the absorption of carbon dioxide by the plant is a measure of its photosynthetic activity, it is essential in order to measure photosynthesis precisely to determine what, if any, direct or indirect changes in respiration take place under the influence of radiation. Is the respiration in darkness the same as it is in light? Some interesting data bearing on this moot question have been obtained both by Dr. McAlister and by Drs. Johnston and Weintraub.

#### CHLOROPHYLL FORMATION AND MEASUREMENT

In any extensive quantitative study of photosynthesis, the role of chlorophyll must be considered. Work already done by Dr. McAlister on the induction phase of photosynthesis provides evidence for the

view that chlorophyll participates in the process of photosynthesis as an individual molecule rather than by units of several hundred or several thousand.

The development of apparatus and method for the determination of small amounts of total chlorophyll by Dr. Johnston and Dr. Weintraub has been completed. With a 5-cm. absorption cell, the sensitivity is 0.1 microgram ( $\frac{1}{10000}$  milligram) of chlorophyll. One square centimeter of leaf is sufficient for duplicate determinations which check within 2 to 3 percent.

The method is based on the transmission of light in the region of the red absorption band of a solution of chlorophyll in acetone. The transmitted energy is determined by means of a galvanometer and a vacuum thermocouple of extremely high sensitivity that was designed and constructed by Mr. Clark. The percentage transmission of the acetone extracts of plant material is then compared with a calibration curve constructed from data obtained with solutions of purified chlorophyll.

This method eliminates the constant use of standard chlorophyll solutions and is not influenced by the presence of carotenoid pigments in the extract. Furthermore, it is unaffected by minor fluctuations in the light intensity, and errors involved in subjective intensity and color comparisons are avoided.

Experiments are in progress to determine the rate of chlorophyll formation as influenced by age and condition of plant material, temperature, and nutritional environment of the plant, the carbon dioxide content of the atmosphere, and the role played by light intensity and wave-length distribution. The relationship between rate of chlorophyll formation and intensity of light appears to be represented by a typical Blackman curve. In other words, in white light, the rate of formation during the first few hours of illumination is substantially independent of intensity above 3 to 4 ergs/mm.<sup>2</sup>/sec.

Our new method of chlorophyll determination at present is limited to the estimation of total chlorophyll. It is very desirable to determine the components, *a* and *b*, separately. Plans for modifying the method with this end in view are now being formulated.

#### PLANT GROWTH INVESTIGATIONS

##### GROWTH UNDER ARTIFICIAL ILLUMINATION

Further progress has been made by Dr. Johnston in his investigations of suitable artificial illumination for the growth of plants under controlled conditions. This year work has been done with two sizes of fluorescent daylight lamps. Under the experimental conditions used for the culture of tomato plants, it was found that the intensity



was somewhat too low for good growth. However, Dr. Meier found the growth of algae to be better under these lamps than in daylight. The algae were illuminated for 12 hours daily at intensities of 150 to 300 foot-candles. The temperature during the illumination periods was 24° C., and during the dark periods, 22° C.

#### INFLUENCE OF LIGHT IN EARLY GROWTH OF OAT SEEDLINGS

The oat seed on germination develops roots and a shoot. The latter consists of the first internode and of a sheathing structure, the coleoptile, in which the young leaves are enclosed. Elongation of the internode proceeds rapidly in darkness but is inhibited by light. This organ has the function of raising the coleoptile with the embryonic shoot through the soil and into the air where it may develop normally. Thus in deeply planted seeds the internode receives little or no light and therefore elongates until it approaches the soil surface when its growth ceases.

Earlier studies by Dr. Johnston on the relation of light to internode development are being continued by Dr. Weintraub along the following lines:

1. Relation between amount and rate of growth of first internode and intensity of continuous illumination in various portions of the visible spectrum. Preliminary results indicate that intensity of red light (6500 Å.) necessary to produce a distinct inhibition is exceedingly low—of the order of 0.0000001 erg/mm.<sup>2</sup>/sec., whereas the sensitivity appears to be considerably less at other wave lengths thus far studied.

2. Influence of short periods of illumination on development of internodes in seedlings grown subsequently in darkness. The great sensitivity to light is shown by preliminary experiments in which marked or complete inhibition of growth is caused by a minute or less of low intensity (1 foot-candle) illumination.

3. Influence of alternating light and dark periods. The precise effect of light has been found to depend upon the age (developmental stage) of the seedling and upon its previous history. Changes from dark to light, or the reverse, are accompanied by marked after-effects of the preceding treatment.

4. Interrelationships between growth of first internode, coleoptile, and first leaf as influenced by light and by temperature. Evidence of such relationships has been obtained, and further studies are being made in an attempt to determine the cause and effect in them.

5. Mechanism of the response. Attempts to explain the observed behavior in terms of growth-hormone content of the plants await the development of suitable methods for the determination of the hormones. Study of such methods is in progress.

## CULTIVATION OF EXCISED PLANT ORGANS

Excised plant organs grown in culture offer very promising material for many kinds of physiological problems. The growth of excised roots of white moonflower has been found to be very markedly enhanced by illumination. These roots cultured in light also develop chlorophyll, and it has been found that they are capable of synthesizing vitamin C in light but not in darkness. This study, undertaken by Dr. Weintraub in collaboration with Dr. M. E. Reid, of the National Institute of Health, suggests that the vitamin C customarily found in the colorless roots of intact plants is synthesized in the shoots and thence transported to the roots. It is intended to continue the study with excised roots incapable of synthesizing chlorophyll.

A study of the growth of excised leaves has also been initiated and investigation of the influence of a number of growth factors is under way.

## PLANT HORMONES

The assay method for growth-promoting substances, to which reference was made in last year's report, has been published. The next step in this project, which is being carried on by Dr. Weintraub, namely, the development of a quantitative technique for the isolation of the hormones from the plant, has been undertaken, but is not yet completed. With the use of these methods it is hoped to examine the occurrence of the hormones in the plant as correlated with the growth and curvature under the influence of light of various intensities and wave lengths. In connection with the study of the growth-substance extraction, some experiments have been made to ascertain the identity of the naturally occurring hormone in the oat plant. From the results thus far obtained, it appears that the conclusion of other workers that the native hormone is auxin  $\alpha$ , is not necessarily valid.

The volume of detailed work necessarily connected with these plant growth studies could not have been done in the time these studies have been in progress had it not been for the able assistance of Messrs. Brydon and Zipf.

## STIMULATIVE ACTION OF ULTRAVIOLET RADIATION

Dr. Meier has continued her studies on the stimulative action of ultraviolet light. In this research she has shown that a stimulative action causing increased cell multiplication of the green alga *Stichococcus bacillaris* Naeg. results from sublethal exposures to the four short wave lengths of the ultraviolet experimented with, namely, 2352, 2483, 2652, and 2967 Å. The optimum stimulation point occurs

for each of these wave lengths at approximately two-thirds of the lethal exposure. The stimulative action is not transitory but has persisted in the cultures over a period of 2 years. At the end of 2 years' time, the cells in the stimulated cultures were in better condition than those in the controls. The algal cells from the stimulated cultures are slightly shorter and wider than those in the controls. The description of this research will be published under the title "Stimulative Effect of Short Wave Lengths of the Ultraviolet on the Alga *Stichococcus bacillaris* Naegeli."

A series of experiments was carried out by Dr. Meier in which both spores and amoebae of the slime mold *Polysphondylium violacea* were irradiated separately with wave length 2652 Å (lethal to green algae in 60-second exposure). Since normal plants resulted from all the different exposures varying from 30 seconds to 1 hour at an intensity of 2,000 ergs/cm.<sup>2</sup>/sec., experimentation with this slime mold was discontinued. It seems possible that the ultraviolet radiation does not penetrate either the amoebae or the spores.

#### EQUIPMENT AND MATERIALS

Several important pieces of apparatus have been developed in our laboratory and shop. The facilities available for constructing specially devised apparatus during the progress of an experiment is so essential to this type of research that its importance and the services of Mr. Clark and Mr. Fillmen cannot be overemphasized. A much needed modern autoclave has been added to the physical equipment. Dr. Meier's collection of pure cultures of algae has been added to by 14 cultures of green algae from Dr. E. Kol, Szeged, Hungary, and 7 cultures of blue-green algae from Dr. Lee Walp, Marietta, Ohio.

#### PERSONNEL

No changes have occurred in the status of the Division's personnel. The capable services of E. R. Brydon and O. R. Zipf have been continued by the Works Progress Administration during the year.

#### PAPERS PRESENTED AT MEETINGS

New facts in photosynthesis. Presented by E. D. McAlister before the Botanical Society of Washington, D. C., November 1, 1938.

New evidence of the formation of a carbon dioxide-combining intermediate during photosynthesis. Presented by E. D. McAlister before the American Society of Plant Physiologists, Richmond, Va., December 28-30, 1938.

An apparatus and method for the determination of small amounts of chlorophyll. Presented by Earl S. Johnston and Robert L. Weintraub before the Division of Biological Chemistry of the American Chemical Society, Baltimore, Md., April 3-7, 1939.

Carbon dioxide assimilation by green plants. Presented by E. D. McAlister before the American Chemical Society at the University of Delaware, Newark, Del., May 17, 1939.

## PUBLICATIONS

WEINTRAUB, ROBERT L. An assay method for growth-promoting substances utilizing straight growth of the *Avena* coleoptile. Smithsonian Misc. Coll., vol. 97, No. 11, pp. 1-10, 1938.

MCALISTER, E. D. The chlorophyll-carbon dioxide ratio during photosynthesis. Journ. Gen. Physiol., vol. 22, No. 5, pp. 613-636, 1939.

REID, MARY E. and WEINTRAUB, ROBERT L. Synthesis of ascorbic acid in excised roots of the white moonflower. Science, vol. 89, No. 2321, pp. 587-588, 1939.

Respectfully submitted.

EARL S. JOHNSTON,  
*Assistant Director.*

Dr. C. G. ABBOT,  
*Secretary, Smithsonian Institution.*



## APPENDIX 10

### REPORT ON THE LIBRARY

SIR: I have the honor to submit the following report on the activities of the Smithsonian Library for the fiscal year ended June 30, 1939:

The various units that comprise the library have developed one by one in connection with the 90 years and more of the Smithsonian and are important factors in the work of the Institution. Although, in the main, independent reference collections, each serving primarily the group of specialists among whom it has grown up, they form together a system of libraries cooperating to one common end—that of the increase and diffusion of knowledge.

The chief unit of the system is the Smithsonian deposit in the Library of Congress. This is the great central reservoir of material from which the other libraries of the Institution draw almost daily. Next in size and usefulness are the libraries of the United States National Museum and the Bureau of American Ethnology. The others are the Smithsonian office library, the Langley aeronautical library, the libraries of the Astrophysical Observatory, Freer Gallery of Art, National Collection of Fine Arts, National Zoological Park, Radiation and Organisms, and, last but not least, the 35 sectional libraries of the National Museum.

#### PERSONNEL

Unfortunately, the staff lost during the year, through transfer to positions elsewhere, two of its experienced and capable members—Virginia Whitney, under library assistant, and Clyde E. Bauman, assistant messenger. The first vacancy was filled by the promotion of Ruth Blanchard, minor library assistant in the Astrophysical Observatory. She was succeeded by Dorothy E. English. Roland O. J. Caraccio was selected for assistant messenger. There was one temporary assistant—Mrs. Marie Boborykine, who earlier in the year had been for a short time among the 15 W. P. A. employees assigned to the library.

#### EXCHANGE OF PUBLICATIONS

In its exchange work the library had a very successful year. It received by mail 22,406 packages and by the International Exchange Service 2,194, many of which contained more than one publication.

Among the noteworthy sendings were those from the Royal Cornwall Polytechnic Society, Falmouth; Société Forestière Méditerranéenne et Coloniale, Paris; R. Accademia Nazionale dei Lincei, Rome; Anstalt für Sudetendeutsch Heimatforschung der Deutschen Wissenschaftlichen Gesellschaft, Reichenberg; Deutsches Museum von Meisterwerken der Naturwissenschaft und Technik, München; Kongelige Frederiks Universitet, Oslo; and School of American Research, Santa Fe.

There were also important sendings of dissertations from the universities of Berlin, Bern, Bonn, Breslau, Cornell, Dresden, Erlangen, Freiburg, Gand, Giessen, Greifswald, Halle, Heidelberg, Helsingfors, Jena, Johns Hopkins, Kiel, Königsberg, Leipzig, Liege, Louvain, Lund, Marburg, München, Neuchâtel, Pennsylvania, Rostock, Tübingen, Utrecht, Warsaw, Würzburg, and Zürich, and the technical schools of Berlin, Delft, Dresden, Karlsruhe, and Zürich. These numbered, in all, 5,190, of which 2,389 were added to the Smithsonian deposit, and the rest, being medical in character and so not desired by the Library of Congress, were given to the Surgeon General's library.

As usual, the letters written by the staff related, for the most part, to the exchange work of the library. They totaled 2,290. Many of these were prepared in response to 725 want cards indicating the special needs of the libraries of the Institution. They were instrumental in arranging for 263 new exchanges and in bringing to the collections 5,757 publications that were lacking. The number thus obtained was 442 more than in 1938. It should be said, however, that some of the items in question were found, as in previous years, in the west stacks, where a mass of duplicate and other material has recently been sorted and put in order.

The library continued to solicit the return from colleges, museums, and public libraries throughout the country of duplicate copies of Smithsonian publications not wanted in their files. It is gratifying to report that the generous response to this effort—begun several years ago in cooperation with the offices of publications—has made it possible for the library to secure many volumes and parts long missing in its own sets, as well as in sets of other institutions, and to enlarge its exchange activities on behalf of its collections, particularly those in the Smithsonian deposit, the National Museum, the Astrophysical Observatory, and the National Collection of Fine Arts.

#### GIFTS

The past year brought a good many gifts to the library. Outstanding among them was that of 1,636 publications, mostly in Chinese, on the history, art, science, and literature of China. This collection

came from Mrs. Eugene Meyer and was a welcome addition to the library of the Freer Gallery of Art. Another important gift was a set of 40 publications on the history, life, and culture of Siam, from the Department of Fine Arts, Bangkok. Still others were 1,294 scientific journals from Dr. J. R. Swanton, 879 from Henry Otten, 85 volumes of the Engineering News and Engineering News-Record from John W. Berry, 20 or more volumes of The Osteopathic Physician from Dr. O. R. Meredith, a generous number of publications from the Public Library of the District of Columbia, 210 from the American Association of Museums, and 790 from the American Association for the Advancement of Science. There were large gifts, too, from Mrs. Charles D. Walcott and from Secretary Abbot and Assistant Secretary Wetmore, as well as many smaller ones from other members and associates of the Smithsonian staff.

The gifts also included the following: *La Parasitologia en Venezuela y Los Trabajos del Dr. M. Nuñez Tovar*, by Dr. Diego Carbonell, from the Honorable Eleazar López Contreras, President of Venezuela; *A Catalogue of the Pictures and Drawings in the Collection of Frederick John Nettlefold, Volume IV*—the concluding volume of this notable work—by C. Reginald Grundy and F. Gordon Roe, from Frederick John Nettlefold; *The Zoology of the Voyage of H. M. S. Challenger, Part LXVIII, Report on the Seals*, by Sir William Turner, from Professor James C. Brash; *Prehistoria e Historia Antigua de Guatemala*, by J. Antonio Villacorta C., from the author; *Kokatsujiban no Kenkyu* (2 copies), in 2 volumes, by Kawase Kazuma, from Yasuda Bunko; *Y Mathiaid—The Mathews of Llandaff*, and *A List of the Birds of Australasia* (2 copies), by Gregory M. Mathews, from the author; *The Birds of Tropical West Africa, Volume V*, by David Armitage Bannerman, from the Crown Agents for the Colonies; *The Minor Elements—Their Occurrence and Function in Plant Life, with Reference Abstract Bibliography* (one of 9 copies issued)—and *Element Assimilation by Plant Life, with Reference Abstract Bibliography* (one of 12 copies issued), by Griffith Hatton Riddle, from the Research Foundation, Inc.; *Die Bambuti-Pygmäen vom Ituri*, by Paul Schebesta, from M. Hayez, editor; *A Guide to the Snakes of Uganda*, by Capt. Charles R. S. Pitman, from the Uganda Society; *An Anthology of Japanese Poems*, edited and translated by Asatarō Miyamori, from the editor; *The Birds of the Malay Peninsula, Volume IV—Birds of the Low Country, Jungle and Scrub* (2 copies), by Herbert C. Robinson and Frederick N. Chasen, from the Federated Malay States Museums; *Randers Fjords Naturhistorie*, by A. C. Johansen, from Dr. Svend Dahl; *The Molluscs of South Australia, Part 1, The Pelecypoda*, by Bernard C. Cotton and Frank K. Godfrey, from the authors; *Biological Survey of the Mount De-*

sert Region, Part VI, The Insect Fauna, by William Procter, from the author; The Swedes on the Delaware, 1638-1664, by Dr. Aman-dus Johnson, from the author; The Book of Record of the Time Capsule, from the Westinghouse Electric and Manufacturing Com-pany; Moss Flora of North America North of Mexico, Volume 1, Part 3, by Dr. A. J. Grout, from the author; Childe Hassan, by Adeline Adams, from The American Academy of Arts and Letters; The National Geographic Society—U. S. Army Corps Stratosphere Flight of 1935 in the Balloon "Explorer II" (6 copies, with 6 addi-tional maps entitled "The First Photograph Ever Made Showing the Division between the Troposphere and the Stratosphere and also the Actual Curvature of the Earth, Photographed from an Elevation of 72,395 Feet, the Highest Point Ever Reached by Man")—National Geographic Society Contributed Technical Papers, Stratosphere Series, Number 2—From Maj. A. W. Stevens; Atlas der Diatoma-teenkunde, Heft 1-36 (Serie I-III), by Adolf Schmidt, from Mrs. J. V. Parker, in memory of her father, Stephen S. Day; The Craft of the Japanese Sculptor (3 copies), by Langdon Warner, from the Japan Society; Scientific Results of the United States Arctic Ex-pedition—Steamer *Polaris*—Volume 1, Physical Observations (1876), by Emil Bessels, from Emil Brach; Government and the Arts, by Grace Overmyer, from the Carnegie Corporation of New York; Atlas Geografico del Peru, by Mariano Felipe Pas Soldan, from J. G. Braecklein; Your Hall of Fame, by Robert Underwood Johnson, from the author; Poisoning the Public, by Dr. Russell C. Erb, from the author; A Collection of Books by Ephraim George Squier, edited by Frank Squier, from the editor; Mangold and Allied Fam-ilies, compiled by Anna Mangold, from the compiler; A Textbook of Sterilization, by Weeden B. Underwood, from the American Sterilizer Company; The Mask of Fame, by James O'Donnell Ben-nett and Everett L. Millard, from Everett L. Millard; The Collection of Mary Frick Jacobs, by Dr. Henry Barton Jacobs, from the au-thor; The Washington Directory (1822), by Judah Delano, from R. L. Polk and Company; The Lengthening Shadow of Dr. Andrew Taylor Still, by Dr. Arthur Grant Hildreth, from the author; Descendants of Edward Small of New England and the Allied Fam-ilies, with Tracings of English Ancestry, revised edition in 3 volumes, by Lora A. W. Underhill, from Houghton Mifflin Company; The Modern Encyclopedia of Photography, in 2 volumes, edited by S. G. B. Stubbs, F. J. Mortimer, and G. S. Malthouse, from Frank W. Hines; The Museum and Popular Culture, by T. R. Adam, from the American Association for Adult Education; and Selected List of Bibliographies on the Polar Regions, Part 1 (2 copies), compiled and edited by the Works Progress Administration, from The Ex-plorers Club of America.



## SOME STATISTICS

The accessions to the libraries were as follows:

	Volumes	Pamphlets and charts	Total	Approximate holdings, June 30, 1939
Astrophysical Observatory.....	80	108	188	9,679
Bureau of American Ethnology.....	223		223	<sup>1</sup> 51,618
Freer Gallery of Art.....	1,952	105	2,050	15,437
Langley Aeronautical.....	33	16	49	3,443
National Collection of Fine Arts.....	207	220	427	6,767
National Museum.....	2,285	1,039	3,324	214,034
National Zoological Park.....	30	11	41	3,782
Radiation and Organisms.....	163	4	167	436
Smithsonian Deposit, Library of Congress.....	2,941	2,374	5,315	563,385
Smithsonian office.....	105	14	119	30,746
Total.....	3,019	3,894	<sup>2</sup> 11,913	<sup>2</sup> 899,327

<sup>1</sup> The holdings of the library of the Bureau of American Ethnology were reduced somewhat during the year by the elimination of material not pertinent to the work of the Bureau.

<sup>2</sup> From both the accessions for the year and the total holdings are omitted thousands of publications waiting to be completed, bound, or cataloged.

To the various libraries, then, the staff added 11,913 volumes, pamphlets, and charts, or 1,021 more than in 1938. They made 25,176 periodical entries and cataloged 7,298 publications—an increase respectively of 1,184 and 849 over the previous year. They prepared and filed 41,676 catalog and shelf list cards. They borrowed from the Library of Congress and other libraries 2,516 publications and loaned 11,559. They made progress with the index of Smithsonian publications and the index of exchange relations. Finally, they advanced the union catalog substantially, as follows:

Volumes cataloged.....	4,532
Pamphlets and charts cataloged.....	2,507
New serial entries made.....	249
Typed cards added to catalog and shelf list.....	7,095
Library of Congress cards added to catalog and shelf list.....	13,810

## OTHER ACTIVITIES

There were many other activities, a few of which may be mentioned. The staff began for the National Collection of Fine Arts a card index of auction prices of works of art—a file that, when completed, will provide information for use in replying to inquiries as to the market value of such objects; sorted out the George Brown Goode papers that had been stored for years in the archives room adjoining the west stacks and turned them over to the former librarian; made special sendings of duplicates to the Marine Biological Laboratory at Woods Hole and to the following colleges and universities: Brown, Catholic, Columbia, Harvard, North Carolina, Pennsylvania, William and Mary, and Yale; selected a large number of books and serials from the surplus material in the west stacks for inclusion in the reserve collection, against the time when they will

be needed to take the place of publications now in daily use; removed the contents of the old employees' library, had the room refitted as a study, and prepared its shelves to receive part of the archives set of Smithsonian publications; returned to the Superintendent of Documents hundreds of Government publications not needed by the library; grouped a large collection of reprints and separates according to subject and distributed them among the sectional libraries; made considerable progress in reading and rearranging the shelves and revising the records in the natural history and technological libraries; examined hundreds of current serials for articles bearing on the work of the Institution and reported these articles to the curators concerned; mounted, classified, and filed more than 4,000 clippings from the Bell aeronautical collection; carried on active interlibrary loan relations with 50 libraries outside of the Smithsonian system, some of them in distant parts of the country; completed the revision of the author file of Concilium Bibliographicum cards; advanced the work of sorting the contents of the administration library and incorporating it with the main collection; and rendered even more reference and informational service than the year before, including the compiling of bibliographies for the scientists of the Institution and for others and the answering of many letters.

Two of the activities should be described in more detail. One of these was the preparation of a carefully revised and up-to-date list of the volumes and parts still needed in the serial files of the Smithsonian deposit and the library of the National Museum, especially the files essential to the work of the Institution and its branches, with a view to making a further effort—for in nearly all instances several efforts have already been made, but without success—to obtain these indispensable publications by exchange. With this objective in mind, the staff began the listing of important groups of surplus material in the west stacks. As these lists are finished, one by one, copies will be made for use in securing by special exchange arrangements, from institutions or individuals as the case may be, as many of these publications as possible. In fact, even before the year closed, the staff succeeded in obtaining through similar arrangements with certain colleges, universities, and public libraries, including Haverford, Harvard, Leland Stanford, North Carolina, Virginia, and the Free Library of Philadelphia, nearly 700 publications of value to the Institution, among them being such works as Dingler's *Polytechnisches Journal*, 1820–1882; *The Earth and Its Inhabitants*, in 26 volumes, by A. H. Keane; *A History of Spanish Painting*, Volumes IV to VII, Part 2, by Chandler Rathfon Post; *The Haverford Symposium on Archaeology and the Bible*, edited by Elihu Grant; and the *Annual Review of Biochemistry*, Volume VIII, edited by James Murray Luck and Carl R. Noller.

This twofold task—that of preparing both a revised list of essential publications still lacking in the main collections and a list of duplicate holdings of single items and serial runs that may be exchanged for these publications—could not have been undertaken without the aid of a number of capable employees assigned to the library by the W. P. A.

Nor without like assistance could another significant task have been achieved. That was the binding of 260 volumes for three or four of the Smithsonian collections. This work was done at the National Zoological Park, where a temporary bindery was maintained for the purpose. The result of this undertaking was most welcome—all the more so because of the serious arrearage into which the regular binding in several of the libraries has fallen.

#### BINDING

In fact, the library funds available for the year limited the binding to the following: for the National Museum, 400 volumes; the Bureau of American Ethnology, 2; the Astrophysical Observatory, 52; the National Collection of Fine Arts, 71; the Freer Gallery of Art, 21. The total—546 volumes—was, however, only a fraction of the number waiting to be bound.

#### NEEDS

A substantial increase in the annual binding allotment should, therefore, be provided, that the collections may be safeguarded from injury and loss. This is the most crying need of the library. Another need, only a little less urgent, is that of two or three more trained catalogers, with one or two expert typists to assist them. If these additions to the staff could be arranged for, the revision of the main catalogs and shelf lists and the cataloging of the sectional libraries could be rapidly advanced. As the catalog division now stands, it is far too small to undertake much more than its current work.

Respectfully submitted.

WILLIAM L. CORBIN, *Librarian.*

DR. C. G. ABBOT,  
*Secretary, Smithsonian Institution.*

## APPENDIX 11

### REPORT ON PUBLICATIONS

SIR: I have the honor to submit the following report on the publications of the Smithsonian Institution and the Government branches under its administrative charge during the year ended June 30, 1939:

The Institution published during the year 27 papers in the series of Smithsonian Miscellaneous Collections, 1 annual report, and pamphlet copies of 28 articles in the report appendix, and 2 special publications.

The United States National Museum issued 1 annual report, 27 separate Proceedings papers, 1 volume (complete) of Bulletin 100, 4 bulletins, and 2 Contributions from the United States National Herbarium.

The Bureau of American Ethnology issued six bulletins.

Of the publications there were distributed 162,030 copies, which included 187 volumes and separates of the Smithsonian Contributions to Knowledge, 43,469 volumes and separates of the Smithsonian Miscellaneous Collections, 25,563 volumes and separates of the Smithsonian Annual Reports, 2,876 Smithsonian special publications, 69,658 volumes and separates of the National Museum publications, 19,527 publications of the Bureau of American Ethnology, 15 publications of the National Collection of Fine Arts (formerly the National Gallery of Art), 6 publications of the Freer Gallery of Art, 20 reports of the Harriman Alaska Expedition, 15 annals of the Astrophysical Observatory, and 694 reports of the American Historical Association.

#### SMITHSONIAN MISCELLANEOUS COLLECTIONS

Of the Smithsonian Miscellaneous Collections, reprints of 1 paper from volume 74 and of volume 86 were issued. There were also issued 8 papers and title page and table of contents of volume 97, and 17 papers of volume 98, making 27 papers in all, as follows:

#### VOLUME 74

No. 1. Smithsonian Mathematical Formulae and Tables of Elliptic Functions, First Reprint. viii+314 pp. (Publ. 2672.)



## VOLUME 86

Smithsonian Meteorological Tables, Fifth Revised Edition, First Reprint. lxxxvi+282 pp. (Publ. 3116.)

## VOLUME 97

No. 5. Three pictographic biographies of Sitting Bull, by M. W. Stirling. 57 pp., 46 pls. (Publ. 3482.) July 22, 1938.

No. 6. Evolution of the Annelida, Onychophora, and Arthropoda, by R. E. Snodgrass. 157 pp., 54 figs. (Publ. 3483.) August 23, 1938.

No. 7. The direct-historical approach in Pawnee archeology, by Waldo R. Wedel. 21 pp., 6 pls., 2 figs. (Publ. 3484.) October 19, 1938.

No. 8. Drawings by George Gibbs in the Far Northwest, by David I. Bushnell, Jr. 28 pp., 18 pls., 5 figs. (Publ. 3485.) December 30, 1938.

No. 9. A new nuthatch from Yunnan, by H. G. Deignan. 2 pp. (Publ. 3486.) October 10, 1938.

No. 10. Fourth contribution to nomenclature of Cambrian fossils, by Charles Elmer Resser. 43 pp. (Publ. 3487.) December 17, 1938.

No. 11. An assay method for growth-promoting substances utilizing straight growth of the *Avena* coleoptile, by Robert L. Weintraub. 10 pp., 1 pl., 1 fig. (Publ. 3488.) December 31, 1938.

No. 12. The Spence shale and its fauna, by Charles Elmer Resser. 29 pp., 6 pl. (Publ. 3490.) January 20, 1939.

Title page and table of contents. (Publ. 3529.)

## VOLUME 98

No. 1. Two remarkable new species of marine shells from Florida, by Paul Bartsch. 3 pp., 1 pl. (Publ. 3524.) January 26, 1939.

No. 2. The sunspot period, by H. Helm Clayton. 18 pp., 1 pl., 12 figs. (Publ. 3526.) March 27, 1939.

No. 3. The embryology of fleas, by Edward L. Kessel. 78 pp., 12 pls. (Publ. 3527.) May 1, 1939.

No. 4. Five new races of birds from Venezuela, by Alexander Wetmore. 7 pp. (Publ. 3528.) March 10, 1939.

No. 5. Utilizing heat from the sun, by C. G. Abbot. 11 pp., 4 pls., 1 fig. (Publ. 3530.) March 30, 1939.

No. 6. Decapod and other Crustacea collected on the Presidential Cruise of 1938, by Waldo L. Schmitt. 29 pp., 3 pls., 2 figs. (Publ. 3531.) June 15, 1939.

No. 7. A new palm from Cocos Island collected on the Presidential Cruise of 1938, by O. F. Cook. 26 pp., 26 pls. (Publ. 3532.) May 29, 1939.

No. 8. Flowering plants collected on the Presidential Cruise of 1938, by Ellsworth P. Killip. 4 pp. (Publ. 3533.) May 27, 1939.

No. 9. Algae collected on the Presidential Cruise of 1938, by William Randolph Taylor. 18 pp., 2 pls., 2 figs. (Publ. 3534.) June 23, 1939.

No. 10. Mollusks collected on the Presidential Cruise of 1938, by Paul Bartsch. 12 pp., 5 pls. (Publ. 3535.) June 13, 1939.

No. 11. Echinoderms (other than Holothurians) collected on the Presidential Cruise of 1938, by Austin H. Clark, 18 pp., 5 pls. (Publ. 3536.) June 2, 1939.

No. 12. A new holothurian of the genus *Thyone* collected on the Presidential Cruise of 1938, by Elisabeth Deichmann. 7 pp., 3 figs. (Publ. 3537.) June 14, 1939.

No. 13. The polychaetous annelids collected on the Presidential Cruise of 1938, by Olga Hartman. 22 pp., 3 figs. (Publ. 3538.) June 9, 1939.

No. 14. Two new gobioid fishes collected on the Presidential Cruise of 1938, by Isaac Ginsburg. 5 pp., 2 figs. (Publ. 3539.) May 31, 1939.

No. 15. Sponges collected on the Presidential Cruise of 1938, by M. W. de Laubenfels. 7 pp., 1 fig. (Publ. 3540.) June 21, 1939.

No. 16. A new microcoeliid trematode collected on the Presidential Cruise of 1938, by Allen McIntosh. 2 pp., 1 fig. (Publ. 3541.) June 9, 1939.

No. 17. Polyclad worms collected on the Presidential Cruise of 1938, by Libbie H. Hyman. 9 pp., 15 figs. (Publ. 3542.) June 17, 1939.

#### SMITHSONIAN ANNUAL REPORTS

*Report for 1937.*—The complete volume of the Annual Report of the Board of Regents for 1937 was received from the Public Printer in August 1938.

Annual Report of the Board of Regents of the Smithsonian Institution showing the operations, expenditures, and condition of the Institution for the year ending June 30, 1937. xv+580 pp., 134 pls., 47 figs. (Publ. 3451.)

The appendix contained the following papers:

Constitution of the stars, by Sir Arthur Stanley Eddington.

Discoveries from solar eclipses, by S. A. Mitchell.

Changes in the length of the day, by Ernest W. Brown.

The thunderstorm, by E. A. Evans, and K. B. McEachron.

The electron: Its intellectual and social significance by Karl T. Compton.

Photography by polarized light, by J. W. McFarlane.

Measuring geologic time: Its difficulties, by A. C. Lane.

The earth's interior, its nature and composition, by Leason H. Adams.

Origin of the Great Lakes basins, by Francis P. Shepard.

The biography of an ancient American lake, by Wilmot H. Bradley.

Our water supply, by Oscar E. Meinzer.

The first crossing of Antarctica, by Lincoln Ellsworth.

Moving photomicrography, by W. N. Kazeeff.

Fresh-water fishes and West Indian zoogeography, by George S. Myers.

The breeding habits of salmon and trout, by Leonard P. Schultz.

What is entomology? by Lee A. Strong.

Maize—our heritage from the Indian, by J. H. Kempton.

The emergence of modern medicine from ancient folkways, by Walter C. Alvarez.

National and international standards for medicines, by E. Fullerton Cook.

The healing properties of allantoin and urea discovered through the use of maggots in human wounds, by William Robinson.

The aims of the Public Health Service, by Thomas Parran.

Excavations at Chanhudaro by the American School of Indic and Iranian Studies and the Museum of Fine Arts, Boston: Season 1935-36, by Ernest Mackay.

Ras Shamra: Canaanite civilization and language, by Zellig S. Harris.

Blood-groups and race, by J. Millot.

Early Chinese cultures and their development: A new working-hypothesis, by Wolfram Eberhard.

Origin and early diffusion of the traction plow, by Carl Whiting Bishop.

Historical notes on the cotton gin, by F. L. Lewton.

The world's longest bridge span, by Clifford E. Paine.

*Report for 1938.*—The report of the Secretary, which included the financial report of the executive committee of the Board of Regents, and will form part of the annual report of the Board of Regents to Congress, was issued in January 1939.

Report of the Secretary of the Smithsonian Institution and financial report of the executive committee of the Board of Regents for the year ended June 30, 1938. viii+119 pp., 2 pls. (Publ. 3489.)

The report volume, containing the general appendix, was in press at the close of the year.

#### SPECIAL PUBLICATIONS

Exporations and field work of the Smithsonian Institution in 1938. 116 pp., 122 pls. (Publ. 3525.) April 6, 1939.

Classified list of Smithsonian publications available for distribution June 26, 1939, by Helen Munroe. 35 pp. (Publ. 3544.) June 26, 1939.

#### PUBLICATIONS OF THE UNITED STATES NATIONAL MUSEUM

The editorial work of the National Museum has continued during the year under the immediate direction of the editor, Paul H. Oehser. There were issued 1 annual report, 27 separate Proceedings papers from volumes 85 and 86, 1 volume (complete) of Bulletin 100, 4 bulletins, and 2 Contributions from the United States National Herbarium, as follows:

##### MUSEUM REPORT

Report on the progress and condition of the United States National Museum for the year ended June 30, 1938. iii+121 pp. January 1939.

##### PROCEEDINGS: VOLUME 85

No. 3035. A miocene dog from Maryland, by Charles T. Berry. Pp. 159-161, fig. 68. August 10, 1938.

No. 3039. The Cuban operculate land shells of the subfamily Chondropominae, by Carlos de la Torre and Paul Bartsch. Pp. 193-403, pls. 7-39. July 27, 1938.

No. 3040. On some species of Chinese earthworms, with special reference to specimens collected in Szechwan by Dr. D. C. Graham, by G. E. Gates. Pp. 405-507. March 20, 1939.

##### VOLUME 86

No. 3041. Revision of the North American beetles of the staphylinid subfamily Tachyporinae—Part 2: Genus *Coproporus* Kraatz, by Richard E. Blackwelder. Pp. 1-10. October 8, 1938.

No. 3042. Descriptions of new and little-known fossil lizards from North America, by Charles W. Gilmore. Pp. 11-26, pl. 1, figs. 1-9, December 16, 1938.

No. 3043. The cambaloid milliped of the United States, including a family new to the fauna and new genera and species, by H. F. Loomis. Pp. 27-66, pl. 2, figs. 10-21. December 17, 1938.

No. 3044. Polyclads from the east coast of North America, by A. S. Pearse. Pp. 67-98, figs. 22-34. December 17, 1938.

No. 3045. Hopewellian remains near Kansas City, Missouri, by Waldo R. Wedel. Pp. 99-106, pls. 3-8. December 16, 1938.

No. 3046. The types of the polychaete worms of the families Polynoidae and Polyodontidae in the United States National Museum and the description of a new genus, by Olga Hartman. Pp. 107-134, figs. 35-41. December 7, 1938.

No. 3047. Review of the fishes of the genera *Polyionus* and *Argyropelecus* (family Sternoptichidae), with descriptions of three new species, by Leonard P. Schultz. Pp. 135-155, figs. 42-45. December 27, 1938.

No. 3048. Revision of the beetles of the melolonthine subgenus *Phytalus* in the United States, by Lawrence W. Saylor. Pp. 157-167, pls. 9, 10. February 15, 1939.

No. 3049. New species of polychaete worms of the genus *Euphrosyne*, with notes on *Euphrosyne borealis* orsted, by Aaron L. Treadwell. Pp. 169-173, fig. 46. January 20, 1939.

No. 3050. Notes on the birds of Tennessee, by Alexander Wetmore. Pp. 175-243. January 31, 1939.

No. 3051. Annotated list of Tennessee mammals, by Remington Kellogg. Pp. 245-303. February 14, 1939.

No. 3052. Species of the foraminiferal family Camerinidae in the Tertiary and Cretaceous of Mexico, by R. Wright Barker. Pp. 305-330, pls. 11-22. May 16, 1939.

No. 3053. The cactus-feeding Phycitinae: A contribution toward a revision of the American pyralidoid moths of the family Phycitidae, by Carl Heinrich. Pp. 331-413, pls. 23-51. March 16, 1939.

No. 3054. Two new ophiurans from the Smithsonian-Hartford expedition, 1937, by Hubert Lyman Clark. Pp. 415-418, pl. 52. April 4, 1939.

No. 3055. New species of flatworms from North, Central, and South America, by Libbie H. Hyman. Pp. 419-439, figs. 47-51. April 14, 1939.

No. 3056. Echinoderms of the Smithsonian-Hartford expedition, 1937, with other West Indian records, by Austin H. Clark. Pp. 441-456, pls. 53, 54. April 5, 1939.

No. 3057. A new cave isopod from Florida, by James O. Maloney. Pp. 457-459, fig. 52. May 26, 1939.

No. 3058. Two new Atlantic species of dog sharks, with a key to the species of *Mustelus*, by Stewart Springer. Pp. 461-468, figs. 53-55. April 27, 1939.

No. 3059. A new sea star of the genus *Poraniopsis* from Japan, by Walter K. Fisher. Pp. 469-472, pls. 55, 56, fig. 56. April 4, 1939.

No. 3060. A revision of the toadfishes referred to *Porichthys* and related genera, by Carl L. Hubbs and Leonard P. Schultz. Pp. 473-496, fig. 57. April 29, 1939.

No. 3061. A new genus of starfishes from the Aleutian Islands, by Austin H. Clark. Pp. 497-500, pl. 57. May 17, 1939.

No. 3062. Eleven new species and three new genera of oceanic fishes collected by the International Fisheries Commission from the northeastern Pacific, by Wilbert McLeod Chapman. Pp. 501-542, figs. 58-70. April 28, 1939.

No. 3063. New species of moths of the families Notodontidae and Bombycidae in the United States National Museum, by William Schaus. Pp. 543-561. May 18, 1939.

No. 3064. Restriction of the genus *Gelechia* (Lepidoptera: Gelechiidae), with descriptions of new genera, by August Busck. Pp. 563-593, pls. 58-71. May 23, 1939.

#### BULLETINS

No. 100, volume 6 (completed). Papers on Philippine diatoms, annelids, hydroids, echinoids, and mollusks. viii+567 pp., 120 pls., 47 figs.



Title page, table of contents, and index, volume 6, Bulletin 100. Pp. i-viii, 535-567.

No. 170. Life histories of North American birds of prey (pt. 2): Orders Falconiformes and Strigiformes, by Arthur C. Bent. viii+482 pp., 92 pls. August 8, 1938.

No. 172. Birds from Siam and the Malay Peninsula in the United States National Museum collected by Drs. Hugh M. Smith and William L. Abbott, by J. H. Riley. iv+581 pp. December 3, 1938.

No. 173. Catalog of the mechanical collections of the Division of Engineering, United States National Museum, by Frank A. Taylor. viii+203 pp., 37 pls. March 2, 1939.

No. 174. Life histories of North American woodpeckers: Order Piciformes, by Arthur C. Bent. viii+334 pp., 39 pls. May 23, 1939.

#### CONTRIBUTIONS FROM THE U. S. NATIONAL HERBARIUM: VOLUME 26

Part 9. A revision of *Besleria*, by C. V. Morton. Pp. i-ix, 395-474. May 9, 1939.

Part 10. The Andean species of *Pilea*, by Ellsworth P. Killip. Pp. i-viii, 475-530, pls. 30-40. June 14, 1939.

#### PUBLICATIONS OF THE BUREAU OF AMERICAN ETHNOLOGY

The editorial work of the Bureau has continued under the immediate direction of the editor, Stanley Searles. During the year six bulletins were issued as follows:

Bulletin 118. An archaeological survey of the Norris Basin in eastern Tennessee, by William S. Webb. 398 pp., 152 pls., 79 figs., 2 maps.

Bulletin 119. Anthropological Papers, Nos. 1-6. No. 1, A preliminary report on archeological explorations at Macon, Ga., by A. R. Kelly. No. 2, The northern Arapaho flat pipe and the ceremony of covering the pipe, by John G. Carter. No. 3, The Caribs of Dominica, by Douglas Taylor. No. 4, What happened to Green Bear who was blessed with a sacred pack, by Truman Michelson. No. 5, Lemhi Shoshoni physical therapy, by Julian H. Steward. No. 6, Panatübijí, an Owens Valley Paiute, by Julian H. Steward. 204 pp., 18 pls., 37 figs.

Bulletin 120. Basin-plateau aboriginal sociopolitical groups, by Julian H. Steward. 346 pp., 3 pls., 13 figs.

Bulletin 121. Archeological remains in the Whitewater District, eastern Arizona. Part 1, House types, by Frank H. H. Roberts, Jr. 276 pp., 30 pls., 53 figs.

Bulletin 122. An archaeological survey of Wheeler Basin on the Tennessee River in northern Alabama, by William S. Webb. 214 pp., 122 pls., 25 figs.

Bulletin 123. Anthropological Papers, Nos. 7-12. No. 7, Archeological investigations in the Corozal District of British Honduras, by Thomas and Mary Gann. No. 8, Linguistic classification of Cree and Montagnais-Naskapi dialects, by Truman Michelson. No. 9, Sedelmayr's Relacion of 1746, translated and edited by Ronald L. Ives. No. 10, Notes on the Creek Indians, by J. N. B. Hewitt, edited by John R. Swanton. No. 11, The Yaruros of the Capanaparo River, Venezuela, by Vincenzo Petrullo. No. 12, Archeology of Arauquin, by Vincenzo Petrullo. 305 pp., 32 pls., 27 figs.

#### REPORT OF THE AMERICAN HISTORICAL ASSOCIATION

The annual reports of the American Historical Association are transmitted by the Association to the Secretary of the Smithsonian

Institution and are communicated by him to Congress, as provided by the act of incorporation of the Association.

The report for 1934 (Writings on American History) and the report for 1937, volume 1 (Proceedings) were issued during the year. The report for 1935, volume 2 (Writings on American History) was in press at the close of the year.

#### REPORT OF THE NATIONAL SOCIETY, DAUGHTERS OF THE AMERICAN REVOLUTION

The manuscript of the Forty-first Annual Report of the National Society, Daughters of the American Revolution, was transmitted to Congress, in accordance with law, December 5, 1938.

#### ALLOTMENTS FOR PRINTING

The Congressional allotments for the printing of the Smithsonian Annual Reports to Congress and the various publications of the Government bureaus under the administration of the Institution were virtually used up at the close of the year. The appropriation for the coming year ending June 30, 1940, totals \$73,000, allotted as follows:

Smithsonian Institution-----	\$15,000
National Museum-----	34,350
Bureau of American Ethnology-----	13,650
National Collection of Fine Arts-----	400
International Exchanges-----	100
National Zoological Park-----	100
Astrophysical Observatory-----	400
American Historical Association-----	8,000
	<hr/>
	72,000
Reserve-----	1,000
	<hr/>
	73,000

Respectfully submitted.

W. P. TRUE, *Editor*.

Dr. C. G. ABBOT,

*Secretary, Smithsonian Institution.*

# REPORT OF THE EXECUTIVE COMMITTEE OF THE BOARD OF REGENTS OF THE SMITH- SONIAN INSTITUTION

FOR THE YEAR ENDED JUNE 30, 1939

*To the Board of Regents of the Smithsonian Institution:*

Your executive committee respectfully submits the following report in relation to the funds of the Smithsonian Institution, together with a statement of the appropriations by Congress for the Government bureaus in the administrative charge of the Institution.

## SMITHSONIAN ENDOWMENT FUND

The original bequest of James Smithson was £104,960 8s 6d—\$508,318.46. Refunds of money expended in prosecution of the claim, freights, insurance, etc., together with payment into the fund of the sum of £5,015, which had been withheld during the lifetime of Madame de la Batut, brought the fund to the amount of----- \$550,000.00

Since the original bequest the Institution has received gifts from various sources chiefly in the years prior to 1893, the income from which may be used for the general work of the Institution. To these gifts has been added capital from savings on income, gain from sale of securities, etc., bringing the total endowment for general purposes to the amount of-----1,172,937.49

The Institution holds also a number of endowment gifts, the income of each being restricted to specific use. These are invested and stand on the books of the Institution as follows:

Abbott, William L., fund, bequest to the Institution-----	\$105,889.85
Arthur, James, fund, income for investigations and study of sun and lecture on the sun-----	39,763.75
Bacon, Virginia Purdy, fund, for a traveling scholarship to investigate fauna of countries other than the United States-----	49,813.20
Baird, Lucy H., fund, for creating a memorial to Secretary Baird--	15,054.53
Barstow, Frederic D., fund, for purchase of animals for the Zoological Park-----	756.30
Canfield Collection fund, for increase and care of the Canfield collection of minerals-----	38,027.52
Casey, Thomas L., fund, for maintenance of the Casey collection and promotion of researches relating to Coleoptera-----	7,683.94
Chamberlain, Francis Lea, fund, for increase and promotion of Isaac Lea collection of gems and mollusks-----	27,998.83
Hillyer, Virgil, fund, for increase and care of Virgil Hillyer collection of lighting objects-----	6,534.50
Hitchcock, Dr. Albert S., Library fund, for care of Hitchcock Agrostological Library-----	1,262.42
Hodgkins fund, specific, for increase and diffusion of more exact knowledge in regard to nature and properties of atmospheric air--	100,000.00

Special research fund, gift, in form of real estate-----	\$20,946.00
Hughes, Bruce, fund, to found Hughes alcove-----	15,063.10
Myer, Catherine Walden, fund, for purchase of first-class works of art for the use of, and benefit of, the National Gallery of Art---	18,847.21
Pell, Cornelia Livingston, fund, for maintenance of Alfred Duane Pell collection-----	2,399.69
Poore, Lucy T. and George W., fund, for general use of the Institution when principal amounts to the sum of \$250,000-----	74,127.59
Reid, Addison T., fund, for founding chair in biology in memory of Asher Tunis-----	29,006.83
Roebbling fund, for care, improvement, and increase of Roebbling collection of minerals-----	119,989.51
Rollins, Miriam and William, fund, for investigations in physics and chemistry-----	96,655.61
Springer, Frank, fund, for care, etc., of Springer collection and library-----	17,829.89
Walcott, Charles D., and Mary Vaux, research fund, for development of geological and paleontological studies and publishing results thereof-----	11,110.49
Younger, Helen Walcott, fund, held in trust-----	50,112.50
Zerbee, Frances Brincklé, fund, for endowment of aquaria-----	756.69
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Total endowment for specific purposes other than Freer endowment-----	849,629.95

The capital funds of the Institution, except the Freer Funds, are invested as follows:

Fund	United States Treasury	Consolidated fund	Separate fund	Total
Abbott, W. L.-----		\$72,582.18	\$33,307.67	\$105,889.85
Arthur, James-----		39,763.75		39,763.75
Bacon, Virginia Purdy-----		49,813.20		49,813.20
Baird, Lucy H.-----		15,054.53		15,054.53
Barstow, Frederic D.-----		756.30		756.30
Canfield Collection-----		38,027.52		38,027.52
Casey, Thomas Lincoln-----		7,683.94		7,683.94
Chamberlain-----		27,998.83		27,998.83
Hillier, Virgil-----		6,534.50		6,534.50
Hitchcock, Library-----		1,262.42		1,262.42
Hodgkins, specific-----	\$100,000			100,000.00
Hughes, Bruce-----		15,063.10		15,063.10
Myer, Catherine W.-----		18,847.21		18,847.21
Pell, Cornelia Livingston-----		2,399.69		2,399.69
Poore, Lucy T., and George W.-----	26,670	47,457.59		74,127.59
Reid, Addison T.-----	11,000	13,506.83	4,500.00	29,006.83
Roebbling collection-----		119,989.51		119,989.51
Rollins, Miriam and William-----		87,155.61	9,500.00	96,655.61
Smithsonian Unrestricted:				
Special-----			1,400.00	1,400.00
Avery-----	14,000	37,022.91		51,022.91
Endowment-----		233,963.65		233,963.65
Habel-----	500			500.00
Hachenberg-----		3,998.41		3,998.41
Hamilton-----	2,500	401.36		2,901.36
Henry-----		1,202.47		1,202.47
Hodgkins (general)-----	116,000	30,049.51		146,049.51
Parent-----	727,640	1,213.76		728,853.76
Rhees-----	590	470.35		1,060.35
Sanford-----	1,100	885.07		1,985.07
Special research-----			20,946.00	20,946.00
Springer-----		17,829.89		17,829.89
Walcott, Charles D., and Mary Vaux-----		11,110.49		11,110.49
Younger, Helen Walcott-----			50,112.50	50,112.50
Zerbee, Frances Brincklé-----		756.69		756.69
Total-----	1,000,000	902,801.27	119,766.17	2,022,567.44



## CONSOLIDATED FUND

*Statement of principal and income for the last ten years*

Fiscal year	Capital	Income	Percentage
1930.....	\$578,292.40	\$28,908.87	5.00
1931.....	668,069.02	28,518.07	4.27
1932.....	712,156.86	26,142.21	3.67
1933.....	764,077.67	28,185.11	3.68
1934.....	754,570.84	26,650.32	3.66
1935.....	706,765.68	26,808.86	3.79
1936.....	723,795.46	26,836.61	3.71
1937.....	738,858.54	33,819.43	4.57
1938.....	867,528.50	34,679.64	4.00
1939.....	902,801.27	30,710.53	3.40

## FREER GALLERY OF ART FUND

Early in 1906, by deed of gift, Charles L. Freer, of Detroit, gave to the Institution his collection of Chinese and other oriental objects of art, as well as paintings, etchings, and other works of art by Whistler, Thayer, Dewing, and other artists. Later he also gave funds for the construction of a building to house the collection, and finally in his will, probated November 6, 1919, he provided stock and securities to the estimated value of \$1,958,591.42 as an endowment fund for the operation of the gallery. From the above date to the present time these funds have been increased by stock dividends, savings of income, etc., to a total of \$5,075,976.76. In view of the importance and special nature of the gift and the requirements of the testator in respect to it, all Freer funds are kept separate from the other funds of the Institution, and the accounting in respect to them is stated separately.

The invested funds of the Freer bequest are classified as follows:

Court and grounds fund.....	\$568,657.02
Court and grounds maintenance fund.....	142,927.75
Curator fund.....	578,682.13
Residuary legacy.....	3,785,709.86
<b>Total .....</b>	<b>5,075,976.76</b>

## SUMMARY

Invested endowment for general purposes.....	\$1,172,937.49
Invested endowment for specific purposes other than Freer endowment .....	849,629.95
<b>Total invested endowment other than Freer endowment....</b>	<b>2,022,567.44</b>
<b>Freer invested endowment for specific purposes.....</b>	<b>5,075,976.76</b>
<b>Total invested endowment for all purposes.....</b>	<b>7,098,544.20</b>

## CLASSIFICATION OF INVESTMENTS

Deposited in the U. S. Treasury at 6 percent per annum, as authorized in the United States Revised Statutes, sec. 5591_____	\$1,000,000.00	
Investments other than Freer endowment (cost or market value at date acquired):		
Bonds (25 different groups)_____	\$371,929.17	
Stocks (44 different groups)_____	571,726.70	
Real estate and first-mortgage notes_____	75,053.67	
Uninvested capital_____	3,857.90	1,022,567.44
Total investments other than Freer endowment_____		2,022,567.44
Investments of Freer endowment (cost or market value at date acquired):		
Bonds (46 different groups)_____	\$2,443,872.57	
Stocks (63 different groups)_____	2,626,308.41	
Real estate first-mortgage notes_____	9,000.00	
	5,079,180.98	
Less temporary overinvestment of capital cash _____	3,204.22	5,075,976.76
Total investments _____		7,098,544.20

CASH BALANCES, RECEIPTS, AND DISBURSEMENTS DURING THE FISCAL YEAR <sup>1</sup>

Cash balance on hand June 30, 1938_____	\$566,492.69	
Receipts:		
Cash income from various sources for general work of the Institution_____	\$67,584.69	
Cash gifts and contributions expendable for special scientific objects (not to be invested)_____	47,670.00	
Cash gifts for special scientific work (to be invested)_____	4,600.58	
Cash income from endowments for specific use other than Freer endowment and from miscellaneous sources (including refund of temporary advances) _____	56,828.21	
Cash received as royalties from Smithsonian Scientific Series_____	45,451.32	
Cash capital from sale, call of securities, etc. (to be reinvested)_____	53,639.08	
Total receipts other than Freer endowment_____		275,773.88
Cash receipts from Freer endowment, income from investments, etc_____	\$212,751.78	
Cash capital from sale, call of securities, etc. (to be reinvested)_____	956,585.13	
Total receipts from Freer endowment_____		1,169,336.91
Total_____		2,011,603.48

<sup>1</sup> This statement does not include Government appropriations under the administrative charge of the Institution.

*Disbursements:*

From funds for general work of the Institution:

Buildings—care, repairs, and alterations-----	\$4, 343. 47
Furniture and fixtures-----	730. 71
General administration <sup>2</sup> -----	31, 024. 53
Library-----	2, 233. 83
Publications (comprising preparation, printing, and distribution)-----	20, 954. 72
Researches and explorations-----	28, 134. 79

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\$87, 422. 05

From funds for specific use, other than Freer endowment:

Investments made from gifts, from gain from sale, etc., of securities and from savings on income-----

35, 506. 31

Other expenditures, consisting largely of research work, travel, increase and care of special collections, etc., from income of endowment funds and from cash gifts for specific use (including temporary advances-----

131, 082. 98

Reinvestment of cash capital from sale, call of securities, etc-----

79, 983. 01

Cost of handling securities, fee of investment counsel, and accrued interest on bonds purchased-----

2, 008. 21

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248, 580. 51

From Freer endowment:

Operating expenses of the gallery, salaries, field expenses, etc-----

50, 919. 62

Purchase of art objects-----

140, 288. 76

Investments made from gain from sale, etc., of securities-----

302, 765. 56

Reinvestment of cash capital from sale, call of securities, etc-----

847, 319. 24

Cost of handling securities, fee of investment counsel, and accrued interest on bonds purchased-----

21, 210. 00

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1, 362, 503. 18

Cash balance June 30, 1939-----

313, 097. 74

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Total-----2, 011, 603. 48<sup>2</sup> This includes salary of the Secretary and certain others.

## EXPENDITURES FOR RESEARCHES IN PURE SCIENCE, PUBLICATIONS, EXPLORATIONS, CARE, INCREASE, AND STUDY OF COLLECTIONS, ETC.

Expenditures from general funds of the Institution:

Publications-----

\$20, 954. 72

Researches and explorations-----

28, 134. 79

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\$49, 089. 51

Expenditures from funds devoted to specific purposes:

Researches and explorations-----

86, 181. 71

Care, increase, and study of special collections.....	\$14,727.09
Publications .....	1,137.55
	<hr/> \$102,046.35
Total .....	151,135.86

The practice of depositing on time in local trust companies and banks such revenues as may be spared temporarily has been continued during the past year, and interest on these deposits has amounted to \$923.62.

The Institution gratefully acknowledges gifts or bequests from the following:

Friends of Dr. Albert S. Hitchcock, for establishment and care of the Hitchcock Agrostological Library.

Research Corporation, further contributions for research in radiation.

John A. Roebling, further contributions for research in radiation.

Mrs. Mary Vaux Walcott, for purchase of certain specimens.

All payments are made by check, signed by the secretary of the Institution on the Treasurer of the United States, and all revenues are deposited to the credit of the same account. In many instances deposits are placed in bank for convenience of collection and later are withdrawn in round amounts and deposited in the Treasury.

The foregoing report relates only to the private funds of the Institution.

The following annual appropriations were made by Congress for the Government bureaus under the administrative charge of the Smithsonian Institution for the fiscal year 1939:

General expenses.....	\$343,785.00
(This combines under one heading the appropriations heretofore made for Salaries and Expenses, International Exchanges, American Ethnology, Astrophysical Observatory, and National Collection of Fine Arts of the Smithsonian Institution and for Maintenance and Operation of the United States National Museum.)	
Preservation of collections.....	609,380.00
Printing and binding.....	68,000.00
National Zoological Park.....	227,000.00
Total .....	1,248,165.00

The Second Deficiency Appropriation Act, fiscal year 1938, approved June 25, 1938, made an appropriation of \$40,000 for the Smithsonian Gallery of Art Commission to carry out the provisions of Section 2 of Public Resolution 95 entitled "Joint resolution to set apart public ground for the Smithsonian Gallery of Art, and for other purposes," approved May 17, 1938.

The report of the audit of the Smithsonian private funds is printed below:



EXECUTIVE COMMITTEE, BOARD OF REGENTS,  
*Smithsonian Institution, Washington, D. C.*

SIRS: Pursuant to agreement we have audited the accounts of the Smithsonian Institution for the fiscal year ended June 30, 1939, and certify the balance of cash on hand, including Petty Cash Fund, June 30, 1939, to be \$314,997.74.

We have verified the record of receipts and disbursements maintained by the Institution and the agreement of the book balances with the bank balances.

We have examined all the securities in the custody of the Institution and in the custody of the banks and found them to agree with the book records.

We have compared the stated income of such securities with the receipts of record and found them in agreement therewith.

We have examined all vouchers covering disbursements for account of the Institution during the fiscal year ended June 30, 1939, together with the authority therefor, and have compared them with the Institution's record of expenditures and found them to agree.

We have examined and verified the accounts of the Institution with each trust-fund.

We found the books of account and records well and accurately kept and the securities conveniently filed and securely cared for.

All information requested by your auditors was promptly and courteously furnished.

We certify the balance sheet, in our opinion, correctly presents the financial condition of the Institution as at June 30, 1939.

Respectfully submitted.

WILLIAM L. YEAGER & Co.,  
WILLIAM L. YEAGER,  
*Certified Public Accountant.*

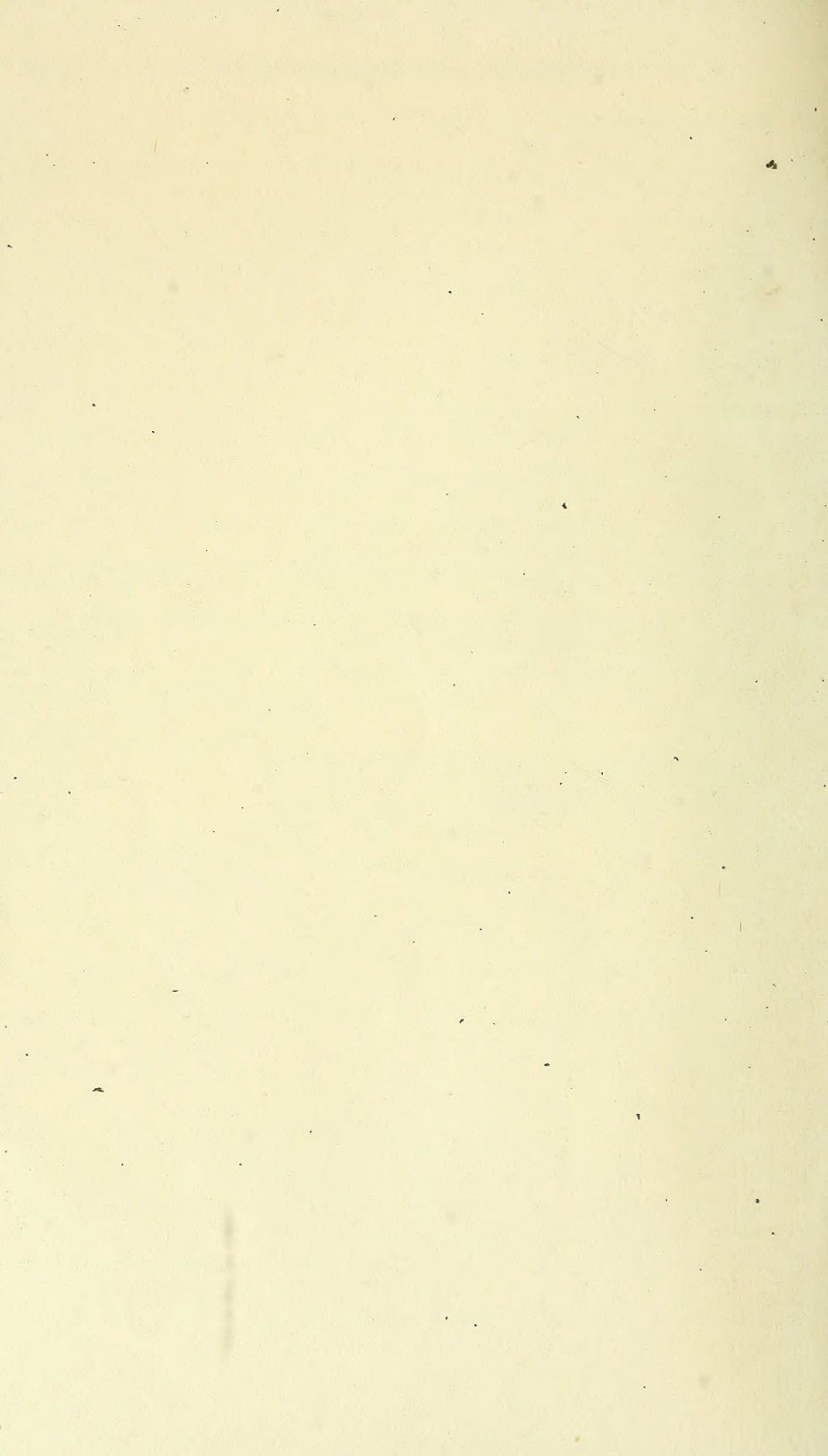
AUGUST 31, 1939.

Respectfully submitted.

FREDERIC A. DELANO,  
R. WALTON MOORE,  
*Executive Committee.*











SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01296 8517

